AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—Washington.

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A SHADED SHEEP PASTURE.—*Drawn and Engraved for the American Agriculturist.*

Much has been said and written in recent years about the preservation or the growth of trees. They have generally been looked upon as something to be cut down and destroyed—as useless, if not injurious, because taking the place of something that might grow with profit. But trees have their value as shade even in the pasture usually given up to grass. A few spreading trees render the field attractive to the beholder, or should do so, whether he be the owner or merely a passer by. The comfort of the animals resting and ruminating under the cool shade is too apparent to be disputed, and the flowing pail at night in the dairy, or the vigorous and playful flock, betoken the intrinsic value of the shade which has sheltered them from the heat of the mid-day sun. The agreeable scene pictured above could hardly be seen in an American landscape, unless it might be in the blue-grass regions of Kentucky, where one may occasionally find a picturesque grove of broad spreading trees on the rolling meadows of that far-famed locality, under which flocks of choice sheep or herds of magnificent Shorthorns rest themselves or graze contentedly. The view above is by a European artist, and represents a flock of French Merino sheep under the care of a shepherd, in a finely shaded pasture. It recalls the history of those times when a small flock of thoroughbred Merinos represented a small fortune to the owner or the purchaser, and when a ram was considered worth several thousand dollars, and a ewe only a little less; and when the unfortunate owner of a flock fed with it by day and slept with it at night. It can scarcely be said that those were extravagant days, when we consider what has resulted from the popular appreciation of the merits of those valuable sheep from which the American Merino has descended, and which are represented in the above picture. Our American Merinos partake more of the character of the French than of the Spanish prototypes. The heavy, deep bodies, the wrinkled necks, the thickly wooled bellies and legs covered to the hoofs, mark the French rather than the Spanish type, and as the popular demand for longer wool than that of the extremely small sheep, and the extra gain in the way of mutton in the carcass of the larger, long-wool Merinos, secure greater profit, so the present improved American Merino would be well represented by this foreign picture. And it is certainly desirable that the comfortable scene above may have the useful effect of encouraging a taste for shaded pastures, in place of the too frequent bare, unsheltered fields in which sheep pant and suffer from intolerable heat under the shady side of a rail fence, forced to content themselves with that make-believe shelter from the sun's rays, which prevent feeding and the possibility of comfortable rest. If shade in the pastures is desirable in the cooler climate of Europe, how much more is it needed here, where the sun has so much greater force. Aside from the question of humanity, which should of itself be sufficient to induce us to provide for the comfort of our animals, that of profit is concerned. It can not be expected that animals will thrive under conditions which their owner would find almost intolerable. Let the animals have shade.

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Calendar for June, 1879.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Mo'n sets.	N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Mo'n sets.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Mo'n sets.
		H. M	H. M	H. M.	H. M	H. M	H. M.	H. M	H. M	H. M.
1	S	4 25	7 30	1 50	4 31	7 25	1 54	4 36	7 19	1 58
2	M	4 25	7 31	2 24	4 30	7 25	2 29	4 36	7 20	2 34
3	T	4 24	7 31	rises	4 30	7 26	rises	4 35	7 20	rises
4	W	4 24	7 32	8 13	4 30	7 27	8 6	4 35	7 21	8 1
5	T	4 24	7 33	9 11	4 29	7 27	9 5	4 35	7 22	8 59
6	F	4 23	7 34	9 58	4 29	7 28	9 53	4 35	7 22	9 46
7	S	4 23	7 34	10 34	4 29	7 29	10 30	4 34	7 23	10 26
8	S	4 23	7 35	11 2	4 28	7 29	11 0	4 34	7 23	10 57
9	M	4 23	7 35	11 27	4 28	7 3	11 26	4 34	7 24	11 24
10	T	4 23	7 36	11 49	4 28	7 30	11 48	4 34	7 25	11 48
11	W	4 22	7 37	morn	4 28	7 31	morn	4 34	7 25	morn
12	T	4 22	7 37	0 9	4 28	7 31	0 10	4 34	7 25	0 11
13	F	4 22	7 38	0 30	4 28	7 31	0 32	4 34	7 26	0 34
14	S	4 22	7 38	0 52	4 28	7 32	0 55	4 34	7 26	0 58
15	S	4 22	7 38	1 17	4 28	7 33	1 21	4 34	7 27	1 25
16	M	4 22	7 39	1 45	4 28	7 33	1 50	4 34	7 27	1 56
17	T	4 22	7 39	2 19	4 28	7 33	2 26	4 34	7 27	2 32
18	W	4 22	7 39	2 59	4 28	7 34	3 6	4 34	7 28	3 15
19	T	4 22	7 39	sets	4 28	7 34	sets	4 34	7 28	sets
20	F	4 23	7 40	8 37	4 28	7 34	8 31	4 34	7 28	8 26
21	S	4 23	7 40	9 13	4 29	7 35	9 9	4 34	7 29	9 4
22	S	4 23	7 40	9 45	4 29	7 35	9 41	4 35	7 29	9 38
23	M	4 23	7 40	10 12	4 29	7 35	10 10	4 35	7 29	10 8
24	T	4 23	7 41	10 35	4 29	7 35	10 35	4 35	7 29	10 35
25	W	4 23	7 41	11 0	4 30	7 35	11 0	4 36	7 29	11 1
26	T	4 24	7 41	11 24	4 30	7 35	11 25	4 36	7 29	11 29
27	F	4 24	7 41	11 50	4 31	7 35	11 53	4 36	7 29	11 56
28	S	4 24	7 41	morn	4 31	7 35	morn	4 37	7 29	morn
29	S	4 25	7 41	1 20	4 31	7 35	0 25	4 37	7 29	0 30
30	M	4 25	7 41	0 1	4 32	7 35	1 7	4 38	7 29	1 9

PHASES OF THE MOON.

MOON.	D.	BOSTON. H. M.	N. YORK. H. M.	WASH'N. H. M.	CHA'STON H. M.	CHICAGO. H. M.
Full M'n	4	8 52 mo.	8 40 mo.	8 28 mo	8 16 mo.	7 46 mo.
3d Quart.	11	0 12 ev.	12 0 n'n	11 48 mo	11 36 mo.	11 6 mo.
New M'n	19	3 35 ev.	3 23 ev.	3 11 ev.	2 59 ev.	2 29 ev.
1st Quart	27	1 12 mo.	1 0 mo.	0 48 mo	0 36 mo.	0 6 mo.

AMERICAN AGRICULTURIST.

NEW YORK, JUNE, 1879.

Hints for the Work of the Month.

[*The Hints and Suggestions in these columns are never copied from previous years, but are freshly prepared for every month, from the latest experience and observations, by practical men in each department.*]

Orchard Grass.—In a late season like the present, early grass for pasture or for cutting, is unusually valuable. The great difference between grasses in earliness, is strikingly seen when one has a field of Orchard grass adjoining one of Timothy. Orchard grass is too much neglected, and those who have never grown it, may try it with great advantage. That it is the earliest to start in the spring, comes into blossom with Red Clover, and both are ready for cutting in the best condition at the same time, are by no means all its valuable points.

Hay.—Recent investigations threaten to upset some popular notions. It has long been supposed that early cut hay is more valuable than that cut later. If the judgment of the cows were a test, there would be no question about it. They will leave the riper hay, and even refuse to eat it at all, if they can procure that which has been cut earlier. In the writer's dairy, the milk falls off more than 10 per cent when the young hay is changed for that cut two weeks later. This is sufficient to support the general opinion in spite of chemical analyses, which go to show that ripe hay is heavier, more bulky, and contains more nutritious substance, than that cut earlier.—Perhaps the operations of the chemist can extract more nutriment from ripe hay than can the cow's stomach; but as young hay feeds more profitably, it seems best to cut early.

Mowing Machines are now indispensable. The scythe may be used for cutting about fence corners when the wasteful zigzag rail fence is used; but so far as other uses go, it may be hung up out of the way. In choosing a mower, the chief points to consider are, lightness of draft, strength and simplicity of construction. With these, one has economy in use, durability, convenience of handling, and ease in keeping in order—points of the utmost importance. There is one other point worth noting, which is safety in case of a run away, or when mowing a rough field, and there is danger that the driver may be thrown upon the cutting bar. The cutting bar should always be well in advance of the driver, but never directly ahead of him.

Curing Hay in the cock is preferable to sun drying. The sweating and fermentation improve, and prevent heating in the mow or stack. The writer prefers to put up hay, after the dew is off, in moderately large cocks,—four feet wide and high,—after it has lain spread in the sun for one full day. It may thus stay safely for a week, if necessary, and a hay cap will protect it from a 24 hours' rain. The day it is drawn in, a man should start early and throw open the cocks, to get a final airing for two or three hours before it is taken up.

A Horse Fork should be in every barn. In the hurry of haying, the cost of a horse hay fork may easily be saved in one week, by rapid unloading.

Corn.—Late plantings of corn may be made up to the middle of the month. Some early sorts, and some new varieties which claim to be extra early, may be tried as an experiment. It will pay very well to make late plantings up to July for fodder, planting in drills 3 feet apart, with about 12 grains to the foot in the drill. The large kinds of

Sweet Corn are the best for fodder. Triumph, Marblehead Mammoth, and Stowell's Evergreen, are suitable for this purpose. The common opinion, that sweet corn is better for fodder than field corn, is well founded; but there is some difficulty in curing the stalks, which is easily surmounted however, and which will be noted in season.

Frequent Cultivation is essential to successful corn growing. The cultivator should be kept going this month through the corn and the root crops, about once a week. It matters not that there are no weeds in sight, it is not alone to kill weeds, that we cultivate and hoe, but to loosen the soil, and by that means, to stimulate the growth.

Summer Fertilizing.—The experience of the past few years has often shown it to be useful to give a light dressing of fertilizer to the corn, just before the last cultivation. This helps the earing, and renders many ears productive that would otherwise be abortive. The fertilizer should be worked in with the cultivator. A mixture of poultry manure, ashes, and plaster, will be useful; or the prepared artificial corn fertilizer, may be used in place of this.

Roots.—Early Blood beets, and Sugar beets, may be sown early this month. Mangels will now require clean culture, and vigorous thinning. Rutabagas may be sown from the first to the 25th of this month, upon land that has not been prepared in time for earlier crops.

Fodder Crops.—The rye ground cleared by this time, may be immediately prepared and planted with fodder corn or oats, the latter to be followed with late turnips as the oats are cut for feeding; or Hungarian grass may follow the rye, and be cut off in time for sowing rye again next fall. A good plot of cabbages will be found useful for fall and early winter feeding of cows, and if plants have been provided for, they may be set out on the rye ground, or some other piece of rich moist soil.

Working Horses.—An ample bedding of fresh straw will do much to induce a tired horse to lie down and rest. Clean grooming, and an occasional washing will also greatly encourage restfulness and improve the appetite and health. Over-feeding is not judicious, and will not restore flesh lost by hard work and want of comfortable rest. To prevent galls, the harness should be washed and kept soft with castor-oil. If vermin attack the harness, a little powdered aloes rubbed in with the oil, will keep them away from the leather.

Cows and the Dairy.—Now that winter dairying has come into vogue, it does not pay to pack butter for sale in competition with fresh creamery pails in winter. A change has come over this business, and it is no longer advisable, unless under exceptional conditions, to keep butter stored away for sale. The most profitable butter now is that sold fresh in small tubs or pails. This change should be noted and provided for as soon as may be. It also affects the management of cows, and these are now brought in fresh at any season of the year, so as to keep a constant supply of fresh milk. With the "perfected butter colorings," as they are called, June grass color has paled in comparison, and is now of less consequence. "June" butter,

or butter equal to that, so-called, can now be made, with fresh cows, at almost any time of the year.

Calves.—A run in a good piece of grass will greatly help the calves. The more they are pushed, without over-doing it, during the first year's growth, the better the mature animal will be.

Sheep and Lambs.—Dry ewes may be fattened as quickly as possible, and marketed. Lambs to be made ready for sale, require extra food along with the grass. Those not marketed this month, may be fed until the fall, and sold then, when they will pay better. Flies will soon be troublesome, and sheep and lambs should be closely tagged, and smeared with tar in places where filth may gather. The flock should be closely watched, and counted every night when brought in from pasture. The careful shepherd will count his flock every time they are visited or moved. Anything wrong will then be noticed.

Pigs for fall killing, may be forced from the start. A run at grass, a little milk, and regular, steady feeding on bran and meal slops, will help to make a large growth, which is afterwards quickly filled up with fat. The low prices now prevailing, must be offset by making more pork than formerly out of the same feed.

Rubbing Posts.—A few rubbing posts set up in pastures, will save injury to the fences. Cattle will use these conveniences very often, if provided for them, and it is worth all the trouble, to witness the enjoyment of the animals in the use of them.

Salt Boxes have frequently been described in the *American Agriculturist;* as they are easily made, very useful, and the supply of salt is healthful, a few of these boxes attached to the fences of the pasture, and kept replenished with salt, will be trouble well bestowed.

Hoes and Tools.—Dull tools are labor wasters. It is cheaper to use up a whole grindstone in one season, than to work with dull hoes, spades, and other tools. See that dulled tools are ground sharp every evening; the men may do this, while they are talking and chatting over their pipes, and the tools will be ready for work in the morning.

Poultry.—Cats, rats, and hawks, destroy a good many chickens. Provide safe coops which can be closed at night, and which are not to be opened, until the dew is off the grass in the morning.

Labor-saving Implements.—Work cannot now be done profitably without labor-saving implements. Corn-planters are almost universally used in the West, and eastern farmers can much better compete with their western brethren by availing themselves of the same facilities. Among the most useful at the present time is the "Albany Corn Planter," which, with one man and a horse does the work of five or six men, and at the same time drops fertilizers in the row, and can be turned into a horse-hoe. The lateness of the present season makes almost imperative the use of such machines, which pay their cost in one week's work.

Orchard and Nursery.

June brings the harvest of the strawberries and the early crops of the garden. It is at this time that the weeds, if neglected, will establish themselves to the partial or entire destruction of the crop. The only way to be master is to keep ahead of the weeds. Fight them when they are weak. "Pussley" and parsnips can not thrive together. Clean culture is the only culture that pays. The use of the hoe and rake in June decides, in great measure, what the season's work will bring.

Labels and Record.—Do not trust to the label attached in the nursery as the sole record of the variety. We have often advised that every one have a plan or plot of his orchard. It is well to make a permanent record on heavy pasteboard. This can be copied into the memorandum book carried in the pocket for reference in the orchard. Perhaps the simplest method is to rule the plan in squares, the squares at the side representing the rows, and those at the top designating the trees in each row. As shown in the accompanying diagram, it is easy to indicate any tree, for example, the third tree in the fifth row may be found at once. To simplify this, the varieties are designated by letters or by numbers, letters being on some accounts preferable. The key to the varieties should be attached to the plan, as shown below. Such a plan allows one to find the place of a tree at a glance. In an orchard where the varieties are few, and the rows consist of one variety only, its arrangement is easily remembered; but where, as is often the case, there are but few of a variety, a record is of great convenience.

	1	2	3	4	5	6	7	8
1	A	A	*A	A	C	A	A	A
2	B	B	B	C	C	C	D	D
3								
4								
5								

A—Early Harvest.
B—Porter.
C—Summer Queen.
D—Baldwin.
E—R. I. Greening.
F—Rox. Russet.

The diagram indicates that the first row was set with Early Harvest, but that the fifth tree in the row having died, its place was filled by C, which, the key, shows to be the Summer Queen.

Pruning.—The cessation of the pressing work of earlier weeks allows the orchardist to give his trees the needed pruning. All dead and useless branches should of course be cut away, and those which crowd one another. Cover all large wounds with shellac varnish, or with paint.

Grafts should be looked after. It may be that the shoots from the stock are growing too vigorously at the expense of the graft; remove such twigs. See that the grafts have plenty of room and are not interfered with by surrounding branches.

Thinning.—The sooner this is done after the fruit is set, the better. Two-thirds or one-half of the quantity set may often be removed with advantage.

Mulching.—Apply around young trees almost any substance that will cover the soil and shield it from the drying rays of the sun, and from the evaporation of moisture.

Baskets.—Provide the baskets and crates that may be needed, and let them be distinctly marked.

Curculio.—As soon as the fruit begins to set, the trees should be visited early in the morning, when the curculio is sluggish. A large cloth should be so arranged, that it can be spread, or better, held by four persons, while another gives the tree two or three sharp jars. The insects which fall upon the sheet, should be swept into the fire.

The Borers of the peach and apple tree should be looked to. No surface remedy is of use with these destructive fellows, after they are once *in the tree.* The use of the knife and probe is the effectual means of reaching and destroying them. They can be detected by their "ear marks" of dust, and depression in the bark. It is not necessary to girdle the tree in the operation, in many cases very little use of the knife is required. A few hours spent in this manner, will often save many valuable trees.

The Tent Caterpillar taken at just the right time, and that time is in this month, can be destroyed with comparative ease. As soon as the nests are large enough to be seen, they should be "wiped out of existence." On a cool morning before the greedy "worms" are out for their breakfast, and while the dew is glistening on the nests, is the most favorable time to take them. The lower nests may be reached by the hands, and the upper ones by a pole with a swab of cloth or a brush. A wash of strong lye is an effectual bath for them, but it is best to see that they are burned or crushed.

The Fruit Garden.

The Grape Vines.—One-year-old vines, set this spring, should not be allowed to grow more than one shoot. Remove all others, reserving of course the strongest. If older vines were set, these should not be allowed to bear, as it is necessary for them to become thoroughly established and prepare for fruiting. Keep all shoots tied up to stakes or trellises. On old vines, the fruit will be greatly improved by thinning after the clusters are set, leaving only two bunches to a shoot.

Strawberries.—If the beds are not already mulched, apply it before the berries get heavy enough to fall over and become soiled. Keep newly set beds clear of weeds, and pull up large weeds that come up through the mulch on old beds. The picking and packing for market requires great care and good judgment, for it is the *appearance* of the fruit in the market which sells it. Avoid putting in over-ripe berries as one such will be crushed and spoil the whole basket. Use well ventilated crates; of a size to be easily handled, and plainly marked.

Blackberries and *Raspberries.*—See that the fruiting canes are properly tied up to the stakes or trellis. The young shoots now growing will form canes for next year's fruiting, and should be attended to. Cut away all except 3 to 5 to each stool, and tie these to the support as soon as old enough. The young canes should be pinched off at 4 feet for raspberries and 6 feet for blackberries. Cut away the old canes after fruiting is past.

Currants and Gooseberries.—Mulch these early in the season; litter from the barn-yard, or chips from the wood-pile may be used. This will prolong the season. If the eggs of the "currant worm," which are deposited on the underside of the lower leaves, were found and destroyed, there would be an end to the trouble at once, but this is not easy to do, and the fight begins, or should begin, as soon as the ragged appearance of the leaves show that the worms are at work. White Hellebore is the remedy, and while it may be dusted upon the bushes, it is better to mix it with water, a tablespoonful to a pailful of water, and applied with a syringe or pump. In mixing the Hellebore, place the powder in a bowl or other dish and pour on hot water gradually, stirring until all is thoroughly moistened, adding a pint or more of hot water; pour this into the pail and fill up with cold water. The application should be repeated every few days so long as worms appear. In our experience, we find that three applications usually finishes them.

Kitchen and Market Garden.

The hoe, rake, or other weeding implement must be frequently run along the rows of growing vegetables. The weeds must be killed. We hope that the time will come when every farmer will know the comfort that a well-planted and well-kept kitchen garden may bring him. Too many are yet content with salt pork and old beans, when they might have an abundance of spinach, green peas, radishes, lettuce, onions, tomatoes, etc. As the early crops come off, they should be replaced by others, so that the garden may show no fallow or unoccupied ground. Provide for succession crops of peas, radishes, sweet corn, etc.

Asparagus must be allowed time to grow its foliage, and prepare the nourishment for next year's crop. From not understanding this, many exhaust their beds by cutting too late. The old rule to stop when green peas come is a good one. When cutting ceases, let the tops grow; their shade will keep down the small weeds, and the few large ones that may appear are to be pulled by hand.

Beets.—Those who would enjoy beets in their perfection should keep up a succession of the Egyptian, to use while they are still young. Thinnings of these and of the late crop make an excellent substitute for spinach.

Beans.—If not already done, put in the Limas; if a cold rain has injured the first lot, replant. These and other pole-beans need a little attention at first to make them take to the pole. Put in the Bush sorts for succession; the "Refugee" is regarded as best late variety and the best for pickling.

Cabbages.—The early crop should be kept growing by frequent hoeings. Plants of the late sorts in seed-beds should not be too crowded, and the cabbage worm kept off; picking will answer here.

Carrots for the late crop may still be sown, using plenty of seed, as the young plants are weak, and can not break through the soil unless sown thickly. Weed as early as the rows can be seen.

Celery.—Weed the seed-bed, and if the plants get large before the time for setting out, cut off their tops; this will make them stocky.

Corn.—Plant at intervals of a week all through

the month. Hoe often, and, if need be, give a top-dressing of guano or other quick-acting fertilizer.

Cucumbers.—Dust the young plants freely with a mixture of ashes and plaster or air-slaked lime, to keep away insects. Unless seed is to be saved, cut away all that are large enough to use, whether wanted or not, to prolong the bearing. In sowing for pickles the last of this month or the first of next, it is as well to sow in well-manured rows, as in hills, putting in 12 to 20 seeds to the foot, to allow enough for the bugs. When well established, thin out the vines to a foot apart, and let them spread on each side of the row.

Egg Plant.—Set out in very rich ground. The potato-bugs will find them the same day, and must be fought from the start; at first, hand-picking may answer, but when the plants get large, the only safety is in the application of Paris green.

Melons need the same care as cucumbers. They may still be sown with the chance of ripening before frost. The same may be said of Watermelons. Use a plenty of seed, especially with the latter.

Onions.—Those from seed will need weeding early. A top-dressing of wood-ashes helps the growth wonderfully. A dressing of salt is thought to prevent a rust that sometimes appears. Keep those from sets clean. Where onions are marketed, they usually bring a better price when sent to market in bunches, half grown, than when ripe.

Peas rarely do well after hot weather comes on, but some of the dwarf sorts may be used to fill vacant places, to take their chances.

Peppers.—Set out in a warm, well-manured spot.

Spinach of a common kind will soon run to seed if sown now, but the New Zealand spinach, a very different plant, makes an excellent substitute. Use an abundance of seed, as it is slow in coming. It spreads widely. Transplant to fill vacancies.

Squashes are subject to several enemies; at least three insects devour the leaves, a borer attacks the stems, and a caterpillar eats the young fruit. Hand picking will do much, but if the spotted Galeruca appears, we shall try Paris green, as we know no other remedy. For the borer it is advised to slightly bury the first few joints of the vine.

Tomatoes in a private garden should always have a trellis or support of some kind, and should be tied to it before the plants fall over. If the plants once get out of shape it is difficult to manage them. The simplest frame of poles that will keep them from the ground, will answer.

Sweet Potatoes.—Set as directed last month. In most Northern localities this is quite early enough.

Odds and Ends.—Fill vacant spots with sweet herbs from seed-bed....Use the hoe....Cut off flower stalks as often as they appear upon the rhubarb....Use the rake....Take care of the hot-bed and other sashes....Use both hoe and rake....Nasturtium, Okra and Martynia for pickles, may still be sown....Use all the weeding implements often.

Flower Garden and Lawn.

To have a fine velvety turf, the mower must be used frequently, usually as often as once a week. Use the sickle in corners near trees and shrubs, and other places not reached by the mower. It is not well to have a greater surface in turf than can be properly cared for. A little well kept is better than the same labor expended on twice the extent.

The Paths should be kept free from weeds, well rolled, and the edgings cut and in good trim. The appearance of the grounds depend much upon nicely kept margins to the paths.

Bedding Plants should be out now. If ornamental beds or ribbon designs are attempted, they will need attention from the first, in order to keep the lines distinct, and the designs well marked.

Annuals must be either transplanted or the seeds sown at once.

Neatness.—Everything about the premises should show good keeping, which comprises attention and a vast number of minute details. A well kept grass plot and a few shrubs is vastly more pleasing than beds of the most showy flowers kept in a slovenly manner, or not kept at all.

Greenhouse and Window Plants.

We usually have settled weather at this time, and those plants that are to go out to decorate the lawn or veranda, or to be set in the borders, should be removed. The greenhouse can be made attractive by the better arrangement of the remaining plants. Shading must be provided, insects watched and kept in check, and watering will demand more than usual attention as the days get warmer.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our record kept daily during the year, show at a glance the transactions *for the month ending May 12th*, 1879, and for the corresponding period last year:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats*
26 d's *this* m'th	391,000	3,769,000	2,441,000	297,000	351,000	938,000
26 d's *last* m'th	413,000	3,457,000	2,916,000	314,000	207,000	811,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 d's *this* m'th	441,000	8,504,000*	5,763,000*	474,000	382,000	1,307,000
26 d's *last* m'th	395,000	8,431,000*	5,687,000*	439,000	291,000	1,213,000

* Including sales for forward delivery.

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1879	391,000	3,769,000	2,441,000	297,000	351,000	938,000
26 days 1878	223,000	3,417,000	2,109,000	396,000	405,000	581,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1879	441,000	8,504,000	5,763,000	474,000	382,000	1,307,000
26 days 1878	407,000	4,576,000	2,334,000	425,000	371,000	835,000

3. *Stock of grain in store at New York.*

	Wheat.	*Corn.*	*Rye.*	*Barley.*	*Oats.*	*Malt.*
	bush.	bush.	bush.	bush.	bush.	bush
May 4, 1879	1,933,402	1,036,039	372,867	252,646	451,492	81,336
May 7, 1878	748,196	263,020	75,229	207,576	570,298	258,327

4. *Exports from New York, Jan. 1, to May 9.*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Peas.* bush.
1879	1,056,171	14,460,284	9,937,264	1,154,869	86,290	176,388	150,153
1878	904,902	14,932,,98	6,690,781	1,340,395	1,355,407	223,827	212,106
1877	436,997	3,124,698	7,062,226	439,665	123,083	60,141	126,874
1876	728,579	7,614,910	4,336,520	102,604	—	75,290	319,539

CURRENT WHOLESALE PRICES.

	Apr. 12.			May 12.		
FLOUR—Super to Extra State	$3 25	@	4 25	$3 40	@	4 35
" Super to Extra South'n.	3 25	@	6 50	3 40	@	6 75
" Extra Genesee	4 25	@	5 75	4 40	@	6 00
" Superfine Western	3 25	@	3 60	3 40	@	3 90
" Extra Western	3 60	@	8 75	3 65	@	9 00
" " Minnesota	3 65	@	8 50	3 65	@	8 75
RYE FLOUR, Superfine	2 75	@	3 25	2 85	@	3 40
CORN-MEAL	2 00	@	2 40	2 10	@	2 40
OAT MEAL, ₱ bbl	3 00	@	6 30	2 75	@	5 75
WHEAT—All kinds of White	95	@	1 15	96	@	1 17½
" Red and Amber	95	@	1 15	95	@	1 17½
" Spring	75	@	1 05	77	@	1 06
CORN—Yellow	44¾	@	52½	45	@	55
" White	45	@	52	45	@	52
" Mixed	43	@	46¾	44	@	47
OATS	30	@	42	30	@	42
RYE	57	@	63	58	@	64
BARLEY	50	@	1 07½	40	@	95
HAY—Bale, ₱ 100 lbs	30	@	75	80	@	80
STRAW, ₱ 100 lbs	25	@	55	30	@	55
COTTON—Middlings, ₱ lb	11¾	@	11¾	12¾	@	12¾
HOPS—Crop of 1878, ₱ lb	5	@	13	5	@	13
" 1877, ₱ lb	2	@	4	2	@	4
" olds, ₱ lb	1	@	2	1	@	2
FEATHERS—Live Geese, ₱ lb	30	@	45	35	@	46
SEED—Clover, West. & St. ₱ lb	6	@	7	6	@	7
" Timothy, ₱ bushel	1 30	@	1 50	1 20	@	1 40
" Flax, ₱ bushel	1 35	@	1 40	—	@	—
TOBACCO, Kentucky, &c., ₱ lb	2½	@	12¾	2½	@	11½
" Seed Leaf, ₱ lb	7	@	50	5	@	40
WOOL—Domestic Fleece, ₱ lb	18	@	37	18	@	37
" Domestic, pulled, ₱ lb	16	@	35	16	@	34
" California	11	@	25	9	@	22
TALLOW, ₱ lb	6¾	@	6¾	6¾	@	6¾
OIL-CAKE—₱ ton	27 00	@	—	27 50	@	27 75
PORK—Mess, ₱ barrel	9 31½	@	10 62½	9 00	@	10 00
" Extra Prime, ₱ barrel	—	@	—	9 50	@	10 25
BEEF—Extra mess	10 50	@	11 50	10 50	@	11 50
LARD, in tres. & bbls, ₱ 100 lb	6 30	@	6 81½	6 15	@	6 67½
BUTTER—State, ₱ lb	9	@	20	7	@	19
" Western, poor to fcy, lb	6	@	28	5	@	19
CHEESE	3	@	8¾	2	@	8
EGGS—Fresh, ₱ dozen	11½	@	13½	10½	@	12
POULTRY—Fowls, ₱ lb	10	@	15	9	@	14
" Chickens, ₱ lb	11	@	16	20	@	33
" ₱ pair	50	@	1 00	75	@	1 40
" Roosters, ₱ lb	7	@	10	5	@	7
Turkeys—₱ lb	15	@	20	12	@	18
Geese, ₱ pair	75	@	2 00	75	@	2 00
" ₱ lb	5	@	14	—	@	—
Ducks, ₱ pair	50	@	90	50	@	90
" ₱ lb	12	@	21	—	@	—
Capons, ₱ lb	—	@	—	20	@	25
DUCKS, Wild, ₱ pair	20	@	1 00	—	@	—
SNIPE, per doz	1 25	@	1 50	50	@	2 00
PIGEONS, ₱ doz	1 25	@	4 50	30	@	3 25
APPLES, ₱ barrel	1 00	@	2 50	1 00	@	2 50
ORANGES, ₱ bbl	6 00	@	10 00	—	@	—
" ₱ box	—	@	—	—	@	—
STRAWBERRIES, ₱ quart	25	@	35	25	@	75
BEANS—₱ bushel	1 15	@	2 70	1 15	@	3 00
PEAS—Canada, in bond, ₱ bu	—	@	78	75	@	78
" new So., ₱ crate	1 25	@	4 00	50	@	1 00
STRING BEANS, new, ₱ bush	4 00	@	4 50	75	@	1 25
POTATOES, ₱ bbl	2 00	@	3 37½	2 00	@	3 50
" new	9 00	@	11 00	5 00	@	7 00
" Sweet, ₱ bbl	3 00	@	4 00	2 75	@	3 50
TURNIPS ₱ bbl	75	@	1 25	1 25	@	1 75
TOMATOES, new, ₱ small box	1 00	@	1 25	75	@	1 00
RADISHES, new So. ₱ 100 bun	1 00	@	1 50	75	@	1 00
BROOM-CORN	2	@	5¼	2	@	6¾
BEETS, new, ₱ crate	1 50	@	2 00	—	@	—
ASPARAGUS, new, ₱ doz. bun	2 75	@	3 50	1 50	@	2 25
CABBAGES—₱ 100	4 00	@	7 00	2 00	@	12 00
SPINACH, So., ₱ bbl	2 00	@	3 00	75	@	1 00
ONIONS—₱ bbl	4 00	@	5 00	2 00	@	3 00
" ₱ crate	—	@	—	1 25	@	1 50
SQUASH, ₱ bbl	—	@	—	2 00	@	4 00
CUCUMBERS, new, ₱ crate	—	@	—	1 00	@	3 00

An unusually active business has been transacted in the Breadstuff line, especially toward the close, and in Wheat and Corn, largely on speculative account, at generally higher prices, though leaving off weaker. Weather and crop reports have been less satisfactory, and have tended to stimulate purchases. Cable advices have been more favorable to the export interest. With the resumption of inland navigation, holders show at its close less confidence in a buoyant market. The bulk of the available supply of Wheat here and at Chicago and Milwaukee is held under speculative control. Important dealings have been noted in Rye, mainly for shipment to the Continent, and values have been quoted stronger....Hog products have shown depression and irregularity on a lighter movement, even on speculative account. Beef and Beef Hams have been quoted steady, but quiet. Butter and Cheese declined sharply, but closed steady at the modified figures, with more inquiry noted ...Cotton has been again advanced materially, and has been very brisk in the way of options, though quiet for early delivery....Wool has been recently more sought after, and has shown more firmness, with an improved outlook for Woollen Goods....Hops have been in moderate demand, chiefly for home use, within the quoted range....Seeds have been comparatively dull at current quotations....A fair call has been noted for Hay and Straw and Tobacco, at about former rates....Petroleum and Naval Stores have been inactive, and quoted easier in price....Ocean freights have been unsettled, on a moderately active inquiry for accommodation, closing more steadily, with the main call for room for Grain, Flour, Petroleum, and Provisions.

Prices of Feed.

Bran, per ton	$16.00@$18.00
Middlings, per ton	19.00@ 20.00
Ground Feed, per ton	21.00@ 23.00
Linseed-oil-cake, western, per ton	35.00@ 40.00
Cotton-seed-cake, per ton	25.00@ —
Chandler's Scraps, per ₱ lb	2@ 3

Prices of Fertilizers.

Nitrate of Potash (95 per cent.), per lb	9 @9½c.
Sulphate of Potash (potash 44 per cent) per lb	3 @3½c.
do. do. (potash 37½ per cent) per lb	1½@1¾c.
German Potash Salts (potash 12 to 15 p. c. p. ton	$15.00@18.00
Muriate of Potash (potash 50 per cent), per lb	2 @2½c.
Nitrate of Soda, per lb	3¾c.@4¼c
Sulphate of Ammonia (25 per cent.), per lb	4¼c.@4¾c.
Dried Blood (ammonia 13 per cent) per ton	$40.00@45.00
No. 1. Peruv. Guano 10 p. ct. ammonia, standard, ₱ ton	$56.50
do. do. Lobos, do. do.	47.50
do. do. guaranteed, ₱ ton, cargo K	56.00
do do. rectified, per ton, 9.00 p. c.	65.00
do. do. do. do. 3.40 p. c.	51.00
Soluble Pacific Guano, ₱ ton	45.00
Excelsior Fertilizer Works, Fine Ground Raw Bone	55.00
Mapes' Complete Manure (clay soils) per 1,000 lbs	25.00
do. do. do. (light soils) per 1,000 lbs	25.00
do. do. do. "A" Brand, (for turnips) per 1,000 lbs	20.00
do. Grass and Grain Top-dressing, ₱ 1,000 lbs	25.00
do. Fruit and Vine Manure, do.	17.50
do. Bone, strictly pure, meal ....per ton	42.00
do. do. do. medium do.	38.00
do. do. do. dissolved do.	42.00
do. Cabbage and Cauliflower Manure per 1,000 lbs	46.00
do. Corn do. per 1,000 lbs	23.75
Stockbridge Corn Manure, per acre	20.00
" Potato do do	10.00
" Tobacco do do	50.00
" Rye do do	10.00
" Wheat do do	15.00
Bowker's Hill and Drill Fertilizer, per ton	45.00
Baugh's Raw Bone Phosphate, per ton	35.00
Baugh's Manure for Tobacco and Grain, per ton	45.00
Walton Wham & Co.'s Raw Bone Phosphate	40.00
Gypsum, Nova Scotia, ground, per ton	8.00

New York Live-Stock Markets.

RECEIPTS.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Apr. 21	10,625	86	4,880	18,613	33,275
Apr. 28	8,960	46	4,438	23,005	29,532
May 4	11,040	71	4,544	23,998	33,998
May 11	9,339	54	5,208	25,651	39,122
Total for 4 *Weeks*	39,904	257	18,670	90,680	137,927
do. *for prev.* 5 *Weeks*	44,250	326	11,515	104,516	143,645
	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	9,976	64	4,667	22,670	34,482
do. do. *last Month*	8,850	65	2,303	20,903	28,729
do. do. *prev's Month*	9,656	90	1,602	23,199	33,944

The prices for the past four weeks were as follows:

WEEK ENDING	*Range.*	*Larger Sales.*	*Aver.*
Apr. 21	7¼@11 c.	9¼@10¼c.	9¾c.
Apr. 28	8¾@11 c.	9¼@10¼c.	9¾c.
May 4	8¾@11 c.	9¼@10¼c.	9¾c.
May 11	9 @11 c.	9¼@10¼c.	10 c.

Beeves.—A notable improvement has taken place in the market; ¼c. ₱ lb advance was gained in the early part of the month, and this has been still further improved upon. The shipment of dressed beef for export has been resumed, and several hundred head have been sent out weekly; the large reduction in receipts the last week also helped materially to stiffen the market. At the close the feeling was good, and the market strong and active. The lowest prices were 9c. ₱ lb for 55 lb cattle, and 10¼c. was paid for good natives to dress 57 lbs. ₱ cwt. Fancy selected steers brought 11c. ₱ lb; fair to prime beeves ranged from 9¼@10¼c. ₱ lb. Dressed beef sells slowly at 7¼@8¼c. for city slaughter, and 8c. for Western.

Cows have been in demand, and higher, closing at $35 to $55 per head; the latter being an extreme price.

Sheep and Lambs.—The supply being short, business has been active at full prices for good sheep; unshorn selling at the close at 5¾@6¾c. ₱ lb live weight, and shorn at 4¾@5½c. ₱ lb. Lambs have declined, and Virginia and Kentucky sold at 7¼@9c. ₱ lb, alive; State and near-by lambs brought at the close 7¼@10¼c. ₱ lb.

Calves.—The market has ruled dull for veals; country dressed have arrived in bad order, and are unsalable; city dressed sell better, closing at 8c. ₱ lb. Good country dressed brought 6@7c. ₱ lb. Choice live veals sold

for 4@5¼c. ℔ lb live weight for good, and 5¼c. for choice. Buttermilk calves sold heavily at 3@3½c. ℔ lb live weight.

Hogs.—Live hogs are quoted nominally at 3¾@4c. ℔ lb., none being on sale at the close, the market having ruled dull all through the month. City dressed have ranged from 4⅝@5¼c. ℔ lb.

The Horse Market.—An active demand exists for good horses and prices are looking up, but not sufficiently as yet to change quotations. Farmers have made their purchases for spring work and the supply has been ample to meet the demand. Sales have been made for ordinary work horses from $100 to $160 per head, and good teams have been purchased at $225 to $300. The export trade is active; 101 horses and several mules have been sent abroad the past week; 50 of the horses went to France; the mules and a few horses to the West Indies. The export trade now looks promising for the season.

One Month More.

This is the Last Month for securing the valuable PREMIUM ARTICLES, offered in our general list for 1879. All lists must be sent in this month, as the offers will positively cease at 6 *o'clock P. M.*, **June 30,** except as noted below.

But there is *abundant time* THIS MONTH to fill up uncompleted lists, and to start and complete *new* premium clubs before July 1. Many have done so every year. A very little time and attention will secure *free of cost* one or more desirable and useful articles. Let all who have not a copy of the list at hand, send us a postal card at once with name and Post Office address upon it, and say on it, "Send Illustrated Premium List."

To Distant Subscribers.—To put all upon equal footing, as thousands of our readers live at distant points, in all parts of the world, we will allow the time of closing the Premium List to be so extended for such distant readers, that every one, every where, shall have 20 days *after receiving this* paper, in which to gather and forward names for premiums. Those living almost anywhere in the United States or British North American Provinces, will receive this number about June 1st, and thus have a whole month for making up Premium Clubs.

containing a great variety of Items, inc'uding many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.

Clubs can at any time be increased by remitting for each addition, the price paid by the original members: or a small club may be made a larger one at reduced rates, thus: One having sent 6 subscribers and $7, may afterwards send 4 names more and $3, making 10 subscribers for $10.00; and so for the various other club rates.

Bound Copies of volume 37, and of every previous volume back to Vol. XVI. (1857), neatly bound, with gilt backs, Index, etc., are supplied at $2 each (or $2.30 if to be sent by mail). See Publishers' Notes, 2d cover page.

Read the Advertising Columns.—Letters are daily received by the editors, asking where pigs, fowls, seeds, fertilizers, machinery, etc., can be procured. We consider all the information of this kind that is given in the advertising pages sufficient, if those needing anything will only look there; and can not find room to repeat what is already plainly told elsewhere. Every page of the *American Agriculturist*, including the covers, is interesting reading, and should all be carefully examined every month. In addition to looking after what one may want, the reading of what others have to say, in offering their wares, etc., starts up some new idea in the mind of the reader.—When writing to any advertiser, always tell him in what paper his advertisement was seen.

The German Edition.—All the principal articles and engravings that appear in the *American Agriculturist* are reproduced in the German edition. Besides these, there is a special department, edited by an eminent German cultivator. Our friends can do us a good service by calling the attention of their German neighbors and friends to the fact that they can have the paper in their own language, and those who employ Germans will find this Journal a most useful and acceptable present.

The American Pomological Society, at the invitation of the Western New York Horticultural Society, will hold its 17th session at Rochester, N. Y., September 17th to 20th, next. As Rochester is one of the centers of nursery and fruit-growing interests, a large attendance is anticipated. It is hoped that the President, Hon. Marshall P. Wilder will have sufficiently recovered from the effects of his accident to allow him to be present. The life membership fee is $30; that for biennial membership is $4. Those desirous of becoming members can remit the amount to the Treasurer, Thomas P. James, Cambridge, Mass. Each member is entitled to a volume of Transactions, a publication of great value.

"Wrigglers" in a Cistern.—"J. W.," East Bolton, P. Q., Canada. Wrigglers are the larvæ of that musical bird, the mosquito. So long as there is any crack, cranny, or crevice anywhere about the covering, the inlet, or outlet, large enough to admit a mosquito, wrigglers will be bred there. The remedy suggests itself.

The New Haven Horticultural Society will hold its summer exhibition at the Old State House, June 19th and 20th, at New Haven, Conn. The schedule of premiums is full and well considered, and does not omit prizes for the young folks. The President is C. L. Mitchell, and Robert Veitch, Jr., is Secretary.

Horses Gnawing Feed-Troughs.—"Subscriber." The habit of gnawing their mangers is one of which horses can hardly be cured. They may be prevented by making the troughs of hard wood, or covering them with sheet-iron or zinc. They do not gnaw wood to eat the fragments, but to relieve some disagreeable sensation in the teeth, possibly the insufficient wearing down of them in consequence of feeding upon soft food. When horses are fed upon corn in the ear they are much less addicted to this habit.

Nurserymen, Florists, Seedsmen, and those engaged in kindred occupations have formed an "American Association," which will hold its fourth annual meeting at Cleveland, Ohio, this month (June) 18th to 20th. The Association is for the improvement of the trade in its various aspects, and its list of members includes names that are a guarantee that its objects are praiseworthy. The programme as far as given shows that a number of the leading nurserymen will take part in the proceedings, and the subjects announced show that the discussions will not be entirely of a commercial character. The invitation is extended to "all who feel any interest in the general welfare of the Trade." J. J. Harrison, Painesville, O., is President, and D. Wilmot Scott, Galena, Ill., Secretary.

"The Diseases of Live Stock, and their most efficient Remedies," is the title of a work by Lloyd V. Tellor, M.D., and published by the H. C. Watts Co., Philadelphia. While to thoroughly test the value of a work of this kind one should learn by experience how far it meets his wants as an aid in treating his own animals, a very fair opinion can be formed by a careful inspection of its contents. We are favorably impressed by the author's preface, in which he tells us in a few lines that he makes no claim to being a veterinary surgeon, but is a country physician, who, having been frequently consulted about the diseases of domestic animals, turned his attention to veterinary medicine. Of course, with a regular medical education, he was abundantly prepared with the aid of the best works on the subject, to apply his medical knowledge in this direction. In the present work, he gives descriptions of the diseases of animals in popular language, and such directions for their treatment and for simple surgical operations as the owner may safely follow. We are not informed of the price of the work, but presume it is given in the advertising pages.

Value of Light Brahmas.—"G. H. W.," Jacksonville, Ill. The Light Brahmas are valuable chiefly for their large size, early growth, good flavored and tender flesh while young and until two years old. Besides these, their habit of laying in winter is an important consideration. They are very domestic, are easily handled, hardy, and do not fly over a three-foot fence.

Sale of a Percheron.—The Percheron (imported) stallion "Louis Phillipe" was recently sold by his owner, J. J. Parker, of West Chester, Pa., to the Hampton Institute, Va. This horse received a prize at the New York State Fair at Elmira last fall.

The New Work on Dogs.—"The Dogs of Great Britain, America, and Other Countries," a consolidation of two works by "Stonehenge," announced last month, met not only with a cordial welcome from the press, but what is quite as gratifying, from the dog fanciers and readers of such works. The rapid and unexpectedly large sale of this book indicates that the interest in dogs is an intelligent one, and that those who love these animals have a desire to be informed as to their history, and to learn whatever relates to their well-being.

"Archery" is the brief and modest title of a modest little hand-book prepared for the instruction and guidance of those who would learn the use of the bow, or form Archery Clubs, and know the regulations governing shooting. It describes the various implements used in archery, illustrated by numerous engravings, and gives other useful and interesting information. Published by the Orange Judd Company. Price, by mail, 15 cents

Fisk & Hatch—"4 Per Cents."—We were startled, 14 years ago, at the announcement that our friends, Messrs. Fisk & Hatch, had made a round subscription for over **$5,000,000,** of a single issue of U. S. Bonds. These figures seemed enormous then. On questioning them about it, they said they knew the people would want them at a premium, and the event proved that they knew what they were about. We were, therefore, less surprised the other day when the morning papers announced that this same Firm had sent to Washington a single subscription for **$150,000,000** of the 4 per cent Bonds, for themselves and others, including $25,000,000 on their own account! It did strike us that this was rather rash. Where would they find purchasers to take off their hands **$150,000,000** in Bonds paying only 4 per cent a year interest? We did not see then so well as they, that hard as the times have been, our people have been growing richer all the time—because they have been learning the important lesson of *keeping expenses within income.* The truth is, if 40 millions of our people, by savings, by reducing debts, by adding to their implements, or stock, or the productive value of their farms, etc., are on the average only $25 better off at the end of a year, it is equivalent to adding, and really does add, $1,000,000,000—*one thousand million* dollars—to the actual wealth of the country, and we have no doubt that this has been done in each of the past two years, if not longer. How far our friends, Fisk & Hatch, judged rightly as to the latent wealth of the country, and to the demand for even a 4 per cent Government Loan, is told in their business announcement on another page. It seems surprising that a 4 per cent bond should already command a premium; but the English Government 3 per cent bonds are selling nearly at par. Our 4 per cents would pay as much annual interest if they cost 18 per cent premium. Should not the credit of this country equal that of Great Britain?

Quinby's New Bee-Keeping.—This work, announced some months ago, is now ready. Mr. Quinby was collecting materials for this revision when his long and useful career as our leading Apiarian was terminated by his sudden death. It is fortunate that his son-in-law, Mr. L. C. Root, was thoroughly prepared through a long business association and many years of joint experiment and investigation with him, to take up the work, and give not only Mr. Quinby's later views, but the results of his own experience. Being the latest work on the Apiary, it is also the fullest. In no industry have more important improvements been made within the past few years than in bee-culture, and these are embodied in this new edition. While the work is adapted to the wants of the amateur bee-keeper, those who would take up bee-keeping for profit will find here the methods of one who has for years devoted himself to it as a business. Though Mr. Root modestly accepts the position of reviser, he is really joint author, the work being almost entirely rewritten, and the abundant and excellent illustrations are mainly new, and made expressly for this edition. Sent post-paid by the Orange Judd Company for $1.50.

Planting Fodder-Corn.—"W. C.," Spring Valley, N. J. Corn for the main crop or for fodder may be quickly planted with the Albany Corn Planter. This implement drops the seed 3 inches to 3 feet apart, as may be required, in the row, covers the seed and rolls it, and deposits fertilizer if desired. It is drawn by one horse, and plants 8 or 10 acres in a day. By attaching plows, etc., to it, it is changed to an effective cultivator.

Remedy for Splenic Fever.—Dr. T. E. Wilcox, N. Y., of the U. S. Army, writes as follows in regard to splenic fever or apoplexy of cattle, generally known as Texas fever: "Last season, while I was stationed at Camp Supply, Indian Territory, the disease broke out in the herd of Lee & Reynolds, army beef contractors, and was quickly arrested by feeding the sugar-beet to the cattle exposed, as well as to those not too far gone to eat. This would support Prof. Gamgee's theory that the disease is caused by eating coarse, dry weeds." The undoubted original cause of the disease is malnutrition, by which the blood is disordered and the digestive organs rendered incapable of exercising their functions. Laxative food, such as roots of any kind, are a healthful change of diet, and tend to restore the tone of the system, which has been deranged by indigestible and innutritious food. Such laxative food will act as a preventive.

A Compound Microscope in Every Family.—The magnificent instrument described last month (pages 172 and 173) was contrived and prepared specially for the readers of the *American Agriculturist*, and we would be glad if every reader of this Journal, young and old, could enjoy the pleasure and benefit afforded by such an instrument. It is certainly a marvel of cheapness; no microscope of such power, efficiency, and good workmanship was ever before made or offered, in this country or in any other, for anything like so small a sum. This result has been obtained by the application of machinery to the construction of most of its separate parts, and by making them on a tenfold larger scale than was ever before attempted. The interest on the cost of one is only 50 to 70 cents a year—a trifling sum as compared with its value to the younger members of the family especially. A chance for *them* is given on page 232, to obtain one as a premium. We began this item, however, to call attention to what is said of it by several high authorities, as given on page 240.

An Important Land Decision.—The Supreme Court of the United States has just given a very important decision affecting the right to and value of several millions of acres of land in Kansas, Nebraska, and the region beyond. The closing language of Section 3, Act of 1862, chartering the Pacific Railroads, after granting lands, provided that all lands not "sold or *disposed of*" within three years after the completion of the roads, should be subject to pre-emption at $1.25 per acre. The application of a squatter to pre-empt came up last year through the various channels to the Secretary of the Interior, who held, construing this Section—that the lands were subject to pre-emption—the three years having expired—and that the land grant mortgage claimed by the Union Pacific Company to have been such, was not a disposal of the lands, though it was made before the three years expired. In the test case brought by the Company it was held that the mortgage *was* a disposal, and the lands, therefore, *were not* subject to pre-emption. The Supreme Court decides that the land grant was a final disposition of the lands, and therefore, definitely settles the question, removing any doubts thrown upon validity of title by the Schurz decision, and leaves pre-emptionists in the attitude of squatters. These pre-emptionists began to occupy the lands after the Schurz decision was given last year. The decision applies also to the Kansas Pacific Railroad, whose lands, like those of the Union Pacific, have been kept in abeyance for nearly a year by the decision of the Secretary of the Interior. In brief, the railroads can give a full and perfect title to the lands sold by them. Whatever the decision might have been, it is fortunate that the Supreme Court has rendered it so quickly, inasmuch as the present condition of uncertainty is brought to an end.

A Fine Collection of Orchids to be broken up. It is with sadness that we see a private library, which the owner has collected, book by book, through many years, offered for sale, and it is with something of the same feeling that we learn of the breaking up and dispersion of a collection of choice plants, which must be, as in case of the library, of more value to the owner than it can possibly be to a stranger. We regret to learn that the celebrated collection of Orchids, which Mr. Joseph Howland has been making these many years at "Tioronda," Fishkill-on-the-Hudson, N. Y., is to be scattered. Orchid growers can secure from this collection at private sale, such specimens as are rarely offered anywhere.

Tobacco Wash for Sheep.—"M. H. C.," Clarksville, Tenn. Tobacco dip for sheep is made by steeping one pound of coarse tobacco, or twice as much tobacco stems in 5 gallons of hot water. It may be applied at a heat of 110 degrees. Buchan's Carbolic Sheep Dip is less trouble to use and is more effective than tobacco water.

Haying Tools and Their Uses.—Not long ago "Haying Tools" comprised scythe, rake and pitchfork. The introduction of the mower made it necessary that all subsequent steps in the care of the hay crop be greatly facilitated, and we now have, besides rapid raking, the loading, unloading, and mowing away done by machinery, which introduces as great a saving of labor over the old work with pitchforks, as the mowing machine did over the scythe. A barn must now be built with a view to the use of the hay-fork and its carriers, or it is unsuited to the present style of farming. We are led to these remarks by a large and instructive poster issued by the U. S. Wind Engine and Pump Co., Batavia, Ill. This company, besides their widely known and extensively used wind machinery, are also engaged in the manufacture of the "Noyes Haying Tools," which consist of a grapple fork and carrier of the most approved styles. The poster referred to is of special interest, as it gives the details of the proper framing of a barn in which a hay carrier is to be used, and full instructions for putting up such apparatus, with the cost of building, etc. This also gives full details for making a field stacking frame, and many other points that can not fail to be of interest to every farmer, whether he uses these special implements or not. This sheet is sent free to all applicants by the U. S. Wind Engine and Pump Co., which has already won an excellent reputation as makers of the farm appliances, from which the company takes its name.

American Jute.—In an article last month (page 185), on the East Indian Jute and its culture, we mentioned the "American Jute," which was the subject of speculation several years ago, and that this had been revived. It now seems that there is a very different plant from the one there described, that is attracting attention under the name "American Jute." The "Bureau of Statistics of Labor and Improvement," of the State of New Jersey, are encouraging experiments with this *other* "American Jute," so called. We have not space for an extended account of this plant; this we hope to give another month. We can only say that it appears to be deserving of attention, and we advise those of our New Jersey readers who would know more about it to write, though rather late, to Sam'l C. Brown, Esq., Secretary of the above named Bureau, at Trenton, for circulars.

More Imposition Upon Farmers.—Parties are selling in New England, a "Champion" Mower-Knife Grinder, thus conveying the impression that they are in some way connected with the makers of the well known "Champion Reaper and Mower," and thereby gaining the confidence of the farmers. It should be generally known that the makers of the "Champion" have nothing to do with these pedlers, nor do they endorse their grinder in any manner. It is moveover stated that these grinder sellers are up to the dodge of getting signatures to orders, which afterwards turn out to be signatures to *notes*. Farmers, look out! Do not let the assumption of a reputable name induce you to sign *any paper whatever* for strangers—no matter what the pretence.

Pigs with Weak Backs.—"M. O. L.," Shelburne Falls, Mass. The weakness or paralysis in the loins of pigs, results from several causes. Hereditary constitutional disease; indigestion; nervous disorder; rheumatism; inflammation of the kidneys or parasitic worms in them; or, disease of the spinal cord; each one may produce it. It is usually relieved by applying a counter irritant to the skin, such as Mustard-paste or spirits of Turpentine well rubbed in over the loins. The food should be of the most easily digested and nourishing kind, and a mild purgative, such as two ounces of Linseed-oil or Castor-oil is frequently useful.

Erysipelas in a Colt.—"C. M. C.," Bradford Co., Pa. The symptoms of erysipelas in the head of a horse are swelling of the glands and throat at first, then the whole head swells and the tongue is forced out of the mouth; saliva is discharged from the glands; the breathing is difficult from the swelling of the throat, and the distress causes sweating and trembling of the body. The disease is accompanied by fever arising from a diseased condition of the blood caused by continued disordered indigestion, imperfect ventilation, filthy water, impure food, or failure of the excretory organs. It is rarely cured by any treatment.

Buchan's Sheep Dip.—"W. B. W." This may be regarded as a standard article, as it has been before the public for many years, and fully sustains its early reputation as an efficient and perfectly safe preparation for the treatment of scab and other parasitic troubles of sheep. It will be seen, by reference to our advertising columns, that the present agents are Messrs. Kidder & Laird of N. Y.

Common-Sense Chairs.—Common-sense, is said to be a very uncommon commodity, but Mr. Sinclair, whose advertisement appears regularly in our columns, has applied it to chair-making. He calls his wares "Common-Sense Chairs," and one has only to use them, as we have done for years, in-doors and on the veranda, to be convinced that the name is most appropriate. The old style of chair, such as were made when farmers had to build their own, of hickory and other splits, is here improved and modernized. The chairs are good enough to use in the parlor, and not too good to take out-of-doors, and they are far more "restful" and common-sensical than any of the so-called "rustic" seats that are often used (never by the same person twice), on verandas and piazzas. A very comfortable and useful chair will be found in any of the many patterns of the "Common-Sense."

Gardner's Grappling Pitching Apparatus.—Grappling forks are now meeting with general favor, and the apparatus made by E. V. R. Gardner & Co., appears to be among the best. It was the hottest of the hot days of last July, when we went to see it work, and when it took up a "mouthful," we were in doubt which was the part to be taken and which to be left on the load, so big a grip had it. Its carrying arrangement and the ease of tripping seemed to be perfect. The judgment of a looker-on in a close barn on a sweltering July day would be worth little, but the opinion of the farmer who used it was worth much. He was as enthusiastic over it as a boy could be with a new toy, and his only regret seemed to be that that there was no more hay to get in on that day, that he could enjoy the ease and rapidity with which the fork took up the hay, put it just where it was wanted, and dropped it with a slight jerk of the tripping rope. The circular sent out by the makers, gives instructions for making a stacking frame, by which the rapid unloading of the fork can be made useful in placing the hay in stacks or ricks.

Sundry Humbugs.

Large frauds probably do less harm to the community, in the aggregate, than small ones. The number of those who have dollars to invest is vastly smaller than those who have dimes, and, as a general thing, the larger the sum the more the caution exercised in investing it. When one is defrauded out of several dollars the case becomes known, while we seldom hear of the small losses. In a large city like New York, the small retail trade through which the poorer classes are supplied, is honey-combed with fraud. A study of the tricks in measuring and weighing—the frauds played in the "small measure," by which many commodities are sold, and by the spring balance, a contrivance for cheating that should be prohibited by law—would show an astonishing amount of rascality; they present a topic which we may discuss at another time. These minor frauds are like diseases, some so general that they may be regarded as epidemic, while others only appearing now and then, may be called sporadic. The small frauds are not practised upon the poorer classes alone, but are perpetrated openly upon Broadway and other thoroughfares. We described last year the humbug with the

"ALLIGATOR PLANT" FROM FLORIDA,

which was very successful that spring and the one before, but we have not seen it offered this season, probably through fear of the police, who last year had orders to suppress the traffic, after we informed the Mayor of the city of the fraud.. The small branches and young twigs of the common Sweet-gum tree or Bilsted (*Liquidambar*) are curiously winged with broad corky protuberances. The tree is quite common in the vicinity of New York, but as the majority of people go about the world without seeing what it contains, it was an easy matter for the street-venders to pass off these twigs, from the neighboring swamps, as Alligator Plants from Florida, which "needed only to be kept in water for a few weeks when they would produce most beautiful flowers." Hundreds if not thousands of truncheons of this tree, a foot or two long, were sold last spring at 25c. each. Of course no flowers ever came....This spring men appeared on the streets with baskets containing what a placard said were

"MEXICAN CINNAMON BEANS,

to perfume drawers; warranted to retain their flavor." The "beans" were of the size and shape of a large Lima bean, reddish brown, and with a decided odor of the Tonqua-bean or Snuff-bean. These Mexicans sold readily, being *scent* beans, at a cent apiece. Knowing that the odor did not belong to a bean of that shape and appearance, but that it must have been imparted to it artificially, we procured some of them for examination. As they had been most likely wetted with a tincture of Tonqua-bean, we dropped two or three beans into a small bottle of diluted alcohol to remove the tincture, and put them aside to soak. In a day or two after we looked to see how they were getting on, but

THE BEANS WERE NOT THERE!

There was the bottle, the diluted alcohol, a brownish sediment at the bottom, but no beans! This led to breaking open one of those that had not been put to soak. It was a bean of sugar paste, with a covering of chocolate! No *bean* at all. This incident shows how a preconceived notion will lead one astray. There is a red bean about the size and shape of this brought from Florida, and we

supposed that some one having a lot of these on hand had artificially perfumed them to make them sell. This notion prevented our seeing that the bean was not a real one, even though the imitation was most "life-like." We suppose that the chaps got hold of a lot of damaged confectionery and perfumed it. At all events, the "sell" was most complete....Those who have taken an interest in him will be glad to know that

JONES HAS (POSSIBLY) FOUND HIS COUSIN.

Newer readers may not know about Jones and his search for his cousin—as it was last year that we published the pathetic story. In brief, thousands of people have received letters from Jones, informing them that he had a cousin of the same name as theirs, not heard of since the war was over. If the recipient of the letter is this cousin, he can help Jones—and just as well if he isn't. Jones is agent for a lottery, wants cousin to act as agent for sale of tickets; sends cousin a ticket "good in any one of the drawings." If cousin will act as agent, "I," says Jones, "will manage it so that you will draw a prize."—Cousin is to show prize and act as stool pigeon to induce people to buy tickets, which we may feel very sure Jones will not "so arrange it" that *they* shall draw prizes. Jones has kept this up persistently for months, and we doubt not has found persons dishonest enough to help him in his schemes. Sometimes Jones writes to the wrong customer. One of his letters went to a well known citizen of Oneida Co., N. Y., who

WROTE JONES AS FOLLOWS.

"Yours at hand. I enclose a likeness as near as I am able to sketch it. When I was a young man, me and my cousin (by same name as yours) looked like twins. I wonder if we continue to look alike? Please accept my likeness in exchange for yours. I have a brother practising dentistry who some years ago peeled the skin from off my wisdom teeth. It was a great success.

Your Probable Cousin, M. J. N."

Did he look like this?

JONES' COUSINS PORTRAIT.

We reproduce the likeness which Jones' correspondent sent him....Humbugs have a wonderful vitality, and when we think they are thoroughly dead, will often turn up quite bright and lively. If there is one of the lot that we supposed to be more thoroughly dead than another, it is

THE WINE PLANT HUMBUG.

This flourished about 20 years ago, and its history is a sad one, as its victims were mostly farmers of moderate means, to whom it brought, if not absolute ruin, disaster from which they were long in recovering. Though the *American Agriculturist* opposed it steadily from the start, many did not see our warnings. The "California Wine Plant," as it was generally called, it was shown *upon paper*, would at once enrich any farmer who would invest in it. So many plants to the acre would yield so many gallons of juice; this, with so much sugar, would make so many gallons of wine, which at $3 (the price then named) per gallon would, you see, amount to the handsome sum of—we have forgotten how much, but a small fortune per acre. The plant, it was said, while it looked like rhubarb, was quite different, would make a wine which could not be distinguished from Sherry, and all that. Farmers in various parts of the country invested. Such was the infatuation that some mortgaged their farms to get money to buy Wine Plants. The chaps engaged in selling it, bought *rhubarb* from the nearest nursery or elsewhere, made it into small cuttings of Wine Plant, and sold it at an enormous profit. The rhubarb grew, the wine was made, and—that was the end. It is sad now to remember the samples that came to us—small bottles and big bottles of the stuff, begging us to sell it for the sender, and the pathetic stories that came with the samples. There was no sale for the so-called "Wine," a rummy, vinegarish wash that no one would drink and no one would buy, and nothing but loss came of it. Now we hear of

THE WINE PLANT IN VIRGINIA,

and that some large sales have been made. We beg our friends there not only to let it alone themselves, but to prevent others from loss by informing them of the utter worthlessness of the stuff. Squelch this miserable fraud right now.....Let those who visit New York—and we have no doubt the caution will apply to other cities—beware of

MOCK FURNITURE AUCTIONS.

A stranger seeing a flag flying at a stylish-looking house in one of the up-town streets of residences, and learning that "the effects of a family breaking up housekeeping, in consequence of their departure for Europe," are on sale may be tempted to enter. Perhaps he has come to the city in part to buy furniture, etc., and may think that here is a chance for a bargain—so there is, and a very bad bargain. There are parties who carry on this business regularly. They have the poorest furniture made for the purpose, in the showiest and cheapest manner, flashy paintings with the names of reputable artists attached, and everything else on the same scale. There is a regular set of stool pigeons, men and women, to do the bidding, who may be seen at these sales, the same persons week after week. The only safety for a stranger is to keep out, for these are among the worst swindling shops in the city, and are as much deserving the attention of the authorities as were the old Bogus Watch and Jewelry Auctions.

ANOTHER TRICK UPON FARMERS

has lately been played in Pennsylvania. The poultry speculator goes from house to house to buy fowls. He does business very systematically, and when he pays any one money he takes a receipt. Having made a purchase, he takes out his receipt book and proceeds to write the receipt. He writes rapidly and vigorously, as becomes a man of business, but just as he gets to where the signature is to be added—away goes the point of the pencil—"never mind; here is one of those fountain pens," which he takes from his pocket—"Nothing like having two strings to your bow, you know—capital invention, these pens that carry their own ink."—He hands the pen to the farmer, who signs the receipt. A receipt in pencil with the signature in ink, is easily converted into a promissory note for $150—or $200—as the farmer finds out when he gets a notice from the bank in the next town, that his note of a given date, discounted by the bank, will be due on such a day. Our repeated warning:

"FARMERS, BE CAREFUL WHAT YOU SIGN,"

will have to be modified to read "Farmers, be careful what and *how* you sign"—or, perhaps, better yet—"Be careful not to sign anything"—for strangers.

MEDICAL MATTERS,

while they present but little of novelty, show that frauds in this line are still practised. A correspondent in Washington Co., Ind., writes us, and we give the substance of his letter as an example of many others that come to us. He says in effect: "A neighbor of mine has something on the back of his hand, which he thinks is a cancer. A Dr. Starkey, of Philadelphia, who was here, says he is a cancer doctor, and proposed to cure it for $10. My friend paid him $2.50, he left him one little bottle of medicine, and promised to send more medicine next week. Nothing has been heard from him since. Do you know if there is such a man as Dr. Starkey in Philadelphia?

IF YOU KNOW HIM TO BE A HUMBUG

will you please say so in your paper."—We do not know if there is such a man in Philadelphia. We *do* know that any man claiming to be a "Cancer Doctor" has no proper right to the title of M. D., and can have no proper standing among regularly educated physicians. We also know that a man who will agree to cure a cancer, or anything else for $10—or any other sum, is a man we should most carefully avoid. We should not expect to hear again from one who asked $10—and took $2.50. The chap wanted money, took what he could get, and left. Whenever one offers to perform a cure for a given sum; you may be sure that he is a quack and not to be trusted....And now

THE FREE RECIPE DODGE

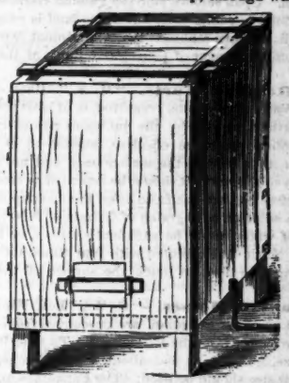
is being played by one Sherar of Rochester—after the manner of the old "Sands of Life" chap, and Inmann, and the rest; he advertises: "An old physician, retired from practice, having had placed in his hands by an East India Missionary, the formula, has felt it his duty to make it known," and all the rest of it. "Actuated by his motive, and a desire to relieve human suffering, I will send free of charge to all who desire it, this recipe."—It is the old, old story.—The recipe contains, among well-known drugs, others that are not known in the drug trade—names unknown to botanical, medical, or any other science. Of course the recipe would do no good unless the stuffs were of the right sort; druggists did not have the right kind. Shearer has made arrangements for their importation, he has the real stuff, which he will send for the cash, and this is the cat in this meal. It is a very old dodge, but it seems to work, and will be a money-making scheme so long as there are people foolish enough to believe these "Retired Physician" and "East Indian Missionary" yarns.

Yellows in Peaches.—Peach-growers everywhere, whose trees are affected by the curl or by yellows, will confer a favor by sending us specimens of the affected portions, with such notes upon the occurrence of the disease as may be of interest. Specimens in a well-secured parcel, tied so that it may be opened—using no paste or gum—will come as third-class matter. The parcel should be directed to "The Editors," and contain no *writing*. Remarks and notes may come by letter.

Pleurisy in a Cow.—"G. C.," Seekonk, Mass. The symptoms of pleuro-pneumonia are a state of fever, hot muzzle, dry skin, deep breathing, redness of the eyes, deep cough, costiveness, a discharge from the nose, the legs are turned out and the nose is held low and extended. By placing the ear to the side of the chest, a sort of crackling sound, like crumpling a newspaper is heard during breathing, in place of the usual natural murmuring sound of the lungs. There are parts of the space where no sound is heard, and when these are tapped by the gathered fingers, it is found dull and hard. In pleurisy there is no deep cough, but a short hacking and a peculiar short sharp quick inspiration, with a slow sighing expiration; the ear held to the chest detects a soft rubbing sound; there is no nasal discharge. As the symptoms in your case are the latter, the cow is suffering from pleurisy and not pleuro-pneumonia.

Soldiers' Claims.—"J. K.," Walla Walla, W. T. Soldiers' claims and U. S. land warrants can be purchased at about $1 per acre, from dealers in many of the large cities. These warrants were originally issued as bounty to soldiers of the Mexican and other of the earlier wars. For their services in the last war, soldiers are entitled to 160 acres of land, by personal residence only, and no warrants are issued; nor is the privilege transferable.

Steaming Apparatus.—"J. L. E." Fulton, Mo. An effective steam chest for fodder, is illustrated herewith. It consists of a box made of plank, with joints made steam tight with white lead, and drawn up with screw bolts. A row of bars is fitted 6 inches above the bottom, to hold the fodder up so as to admit the steam under it. A door is made at the top, through which the



fodder is thrown in from an upper floor, and it is taken out after having been steamed, through a door below. Steam is admitted at the bottom, by means of a pipe shown in the engraving. The feed is thoroughly wetted before it is steamed. A box 6 feet high and 5 feet square inside, will hold 100 heaped bushels, or feed for 50 head per day.

Cornell University.—Invitations to attend courses of lectures by Prof. Goldwin Smith and by Prof. Hermann von Holst, are acknowledged with thanks, and we take the occasion to commend the exquisite neatness of invitations and the cards of admission.

Making Fertilizers from Bones.—"J. Q. G.," Salisbury, Mass. When bones are treated with wood-ashes, the potash in these acts upon the gelatine, this weakens the texture, and allows the bones to be easily broken up. But in this process the bone phosphate is not changed; it remains in the same insoluble condition as before. Phosphoric acid can only be liberated in the soluble form by acting upon the bones with sulphuric acid or oil of vitriol. There are some processes which an individual can learn to perform upon a small scale, if he will study up the subject. Thus he can learn to tan hides and to bleach cloth; he could fit up a small mill, and convert his wheat into flour, and do many other things of the kind, but they will not pay. It is much cheaper for the individual to devote himself to the things that he can do well, and pay others for doing those which can only be properly and profitably done on a large scale. The fertilizer makers have large establishments, with powerful machinery and all needed appliances. The ordinary farmer can no more compete with these in making fertilizers than he can with a flouring mill in grinding his wheat. While we encourage the production of everything upon the farm that can be profitably made there, and spend much time in showing how to save a dollar when it can be *really* saved, we have of late years been convinced that it is better and safer for farmers in general to not attempt to make superphosphates. The

few who have the requisite tact and knowledge for this kind of work are a small minority, and these, if they wish to undertake it, will need no help from us. To farmers in general, unused to handling powerful chemicals, the process presents difficulties, and may be the source of dangerous accidents, and they, as a whole, had better not attempt to make bones into superphosphate.

Pure Bred Stock.—"T. C. R.," Allegheny Co., Pa. The only certain way of ascertaining the purity of the breed of any animal is its record in a trustworthy herd book. Such a record establishes purity of blood so far as the utmost care in securing proof can be used. By tracing the pedigree of an animal through the different owners of its ancestry, and by identifying these through the several transfers, fraud is made almost impossible, and the character of the ancestry and the probable value of the animal are ascertained. The chief value of herd books consists in this.

Safety from Fire from a Steam Engine.—"H. E. C.," Oxford, N. H. There is no doubt that steam can be used on many farms with economy, but the dread of fire prevents it. A safe arrangement can be made without trouble. It is not necessary to have the boiler in the barn, although it may be placed there without danger. A boiler-house may be placed 100 feet from the barn, and the steam carried in pipes protected with asbestos-covering to prevent condensation. Or a chimney may be built through the roof, and the pipe carried into it, and there will be no more danger than in a wooden dwelling-house with a shingle roof. The safer way is to have a detached boiler-house not less than 100 feet distant from the barn.

Harrowing Young Oats.—"D. W. L.," Westwood, Va. Upon smooth land the Thomas Harrow would be beneficial to young oats, but if the land is rough, and it is full of corn-stubble, the experiment would be risky from the danger of tearing out much of the crop.

To Remove Warts.—"H. S.," Hancock Co., Miss. Warts may be safely removed, or at least prevented from further growth, by the judicious use of caustics. The application, to be effective, should be of such a strength, as to corrode the surface only, and not eat into the body of the wart; it should be repeated as soon as the new surface has become freed from the decomposed portion. A solution of 10 grains of Nitrate of Silver, in one ounce of water would be sufficiently strong, or in place of this, Nitric Acid, diluted with four times its bulk of water, may be used to touch the surface of the warts.

Canadian Horses.—"C. W.," Lea, Minn. The horses known as Canadian, are descended from French stock, probably from the Percherons. To raise horses of good size, 1,400 lbs. or thereabout, a pure Percheron (not Norman) sire should be used. The Canadians are smaller than this, and would not be suitable for raising 1,400 lb. horses. The Cleveland Bays described in the *American Agriculturist*, or the Clydesdale would make good sires for the purpose referred to.

Cultivating Oats and Barley.—"P. L. J." Oats and barley, as well as other small grains, are benefitted by and need cultivation, though perhaps not always so much as wheat, as the latter tillers more, and has more roots. If a wheat-hoe is not available for the work, it will be well to give the oat and barley fields a light harrowing after the young plants are 4 to 6 inches high. This will serve as an initial experiment in cultivation.

Shingle Machines.—"J. A. P.," Coahoma Co., Miss. There are machines made for splitting shingles from steamed blocks, or for sawing them from dry blocks. They may be cheaply made in the manner described and illustrated in the *American Agriculturist* for Nov. 1871, which refers to steamed and split shingles. To make shaved shingles, the blocks, sawed as there described, are split by means of an instrument called a "frow," and are shaved in a "horse," shown at p. 223 of this number.

The White Grub.—Strange as it may seem, it is not generally known that the White grub—the large, fat, unpleasant looking caterpillar—is the larval state of the common May-bug or June-bug. The white grub is one of our most serious insect pests, for the reason that its work is done underground, and we have no knowledge of the *approach* of the enemy; we only know that it has *been there* when its work is done. Acres of lawn and meadow grass, rows of strawberry plants, and even rows of nursery fruit trees, and multitudes of other plants, including corn, are annually destroyed by it. In view of the destructiveness of the larva, every perfect insect should be killed. It is the brown beetle that comes into the house in the evening and makes such a noise by bouncing against the ceiling and elsewhere. Catch and kill. While there are more or less each year, the beetles are especially abundant once in three years, the particular year varying with the locality. When they are found clustering in the trees, a special effort should be made to destroy them. The beetles themselves eat the foliage of trees, and are sometimes destructive. They visit both forest and fruit trees, and in great numbers in the year of their abundance. In early morning they do not attempt to fly, and may be shaken from the trees and caught upon cloths spread to receive them. When we consider that with every female we destroy a host of possible grubs, it will be seen that this is the most effective method of dealing with this pest.

Ashes—Plaster.—"J. M. T.," Tilden Co., Ind. If those subscribers who have the back numbers of this journal would examine them before writing to us for information, they would often save themselves much trouble, as they would frequently find their questions already answered either in the "Basket" or some general article. The subject of "ashes" has been treated several times during the past year, but we are of course always ready and glad to answer any new questions....Unleached wood-ashes are a good fertilizer on most sandy loams, and are profitable in any quantity, from 20 to 50 bushels per acre. For wheat and other small grains, sow ashes broadcast, and harrow them in, before sowing the seed. They may be applied to fall-sown wheat in spring, to the extent of 25 bushels per acre, put on in the middle of the day, when the ground and plants are dry....Plaster can have but little effect in impoverishing the soil, though it may to a slight degree *when used alone*, as it furnishes but little plant-food, while it helps the plants get other food from the soil. Plaster is more profitable for a corn-crop on sod-land, where the soil is light, than on stubble, for the reason that its action is greater in connection with decaying organic matter than in a comparatively bare soil. See other items for replies to questions.

An Improved Nest.—"J. R. H.," Attleboro, N. Y., sends the accompanying sketch of a nest-box so arranged with a roller at the front that the fowls cannot roost upon it, nor stand on it to fight other hens from the next. The end partitions are raised 2 inches at the front

above the others, and a roller or 8-sided rod 2 inches thick, is fastened with a wood screw at each end so that it will turn easily and a hen cannot roost on it. There is an opening at the bottom in the front to air the nests.

The Metric System.—We received a few days ago, a postal card from a friend in Boston, along the upper edge of the message side of which, was printed, 13 *Centimeters*=one *Decimeter* and three *Centimeters* over to fill the space. Underneath this was printed, "To make the Centimeters familiar, the Metric Bureau 32 Hawley St., Boston, prints this without charge." We do not know what kind of a "Boston Notion" the Metric Bureau may be, but it takes *measures* in a matter of fact way to popularize the Metric System.

Egg-Eating Hens.—"W. A. B.," Cook Co., Ill. A nest with a false bottom may be used to circumvent egg-eating fowls. The nest is made with a false bottom, sloping from each side to the center, and one-half of it is raised sufficiently above the other to permit the eggs to roll down on to a lower bottom, which is covered with soft hay. When hens are inveterate egg-eaters, it is better to kill them than to bother with them.

Whitewash the Outbuildings.—Now that the hot weather has come, it will be necessary to clean up the buildings to prevent the increase of vermin. A good coat of whitewash well dashed on and into every corner will be very beneficial, and will not only kill lice and fleas and their eggs, but will purify and sweeten the places. A convenient way to apply the wash is to make a barrelful and spread it with a Whitman fountain pump, dashing it into every corner and crevice. In this way there need be no danger of soiling the clothing or the hands, especially if a pair of mittens be worn.

Hungarian Grass for Cows.—"C. H. D.," Smithtown, Iowa. Hungarian grass is a useful green fodder crop, but it makes coarse hay, and is inferior to oat-hay or corn-fodder. Sugar-beets, which may also be planted this month (June) will also make a winter feed superior to Hungarian grass. This grass grows on any good land, and matures for cutting in eight weeks.

Peas and Corn for Fodder.—In place of oats and peas grown together for green fodder, we have of late grown corn and peas; dropping one row of corn and then a row of peas close to it; the double rows are made 3 feet apart, and are cultivated in the usual manner. If the early small corn is grown, the two crops may be sown late in this month, or early in July, and the rows may be made 30 inches apart. It may be used green or cured for winter feeding. The peas fasten themselves to the stalks, and a very dense growth is made.

Artificial Food for Calves.—"T. R. C.," Mineral Co., W. Va. When milk cannot be found for calves, a substitute can be made by pouring boiling water upon some hay, and mixing with a sufficient quantity of this hay tea a quart or more of gruel made as follows: Take a quart of flour, tie it in a cloth and boil it three or four hours; when it is cold, grate a tablespoonful and boil it in one quart of water, with a tablespoonful of linseed meal and a little salt. This gruel may be diluted somewhat if too thick. If the calf suffers from diarrhœa, substitute cotton-seed meal for the linseed, and add a teaspoonful of prepared chalk to each mess of gruel. When there is an irregular supply of milk, too much at one time and none at another, the surplus may be boiled and set away in tightly corked bottles for use in time of scarcity, and then helped out with the above mixture.

Salt for Sheep.—When sheep are turned on to the grass, a daily allowance of salt should be given. A teaspoonful for each sheep is sufficient. The safest way to give the salt is to provide a lump of rock salt in a convenient sheltered place and leave it so that the sheep can go to it when they wish. Salt prevents indigestion, and greatly discourages parasites in the intestines.

Seeding a Reclaimed Marsh.—"D. H. M.," St. Louis, Mo. The surface of a marsh that cannot well be plowed, may be cut up and pulverized by the disc harrow. This can be weighted so as to make a sufficient impression upon the tough surface to make a good covering for the seed. Timothy and Red-top are the best grasses to seed down with. Ten lbs. of Timothy, and 14 lbs. of Red-top seed will be sufficient for one acre.

Second Crop Clover for Feed.—"J. H. D.," Adams Co., Ohio. When a second crop of clover can be cut while it is soft and succulent, and before the stems have become woody, and if it is cured in the cock and not in the full sun, it will yield very acceptable and good fodder. Otherwise it is not only poor feed, but is unhealthful. In this case it would pay better to leave it to die down on the ground as a protection for the next year's crop, and as a fertilizing material. When the season is dry, second growth clover is apt to be hard and indigestible, and unfit for fodder. It may, however, be cut for litter with advantage.

How a Young Horse Can be Spoiled.—"F. H. R.," Macoupin Co., Ill. When a young horse acts badly in harness, it is because he has not been properly taught his business. To whip and ill-use him is to spoil him. A horse is naturally willing and docile, if well used, and much may be done by kindness, patience, and judgment in removing the ill effects of wrong treatment. A colt should be trained when young, and gradually taught its duties; the greatest care should be taken to avoid frightening or irritating the animal, and much patience should be exercised. If the animal refuses to do what is required, punishment will make matters worse; something should be done to distract its attention, when it will generally become docile.

Crops for Plowing Under.—"J. N. H.," Lancaster, Pa. The most available crop for plowing under is red clover, but a heavy growth cannot be produced on poor land without a liberal application of artificial fertilizer. Winter rye may be used for this purpose, but it is not worth nearly so much as clover. Buckwheat ranks next to clover, and can be grown more quickly, it may be sown in May, and after turning under, a second crop may be sown in July to be plowed in in September. Perhaps the best plan would be to sow buckwheat and plow under two crops, following with rye, and plowing that down in May or June, the second year, and then seed to Orchard grass and clover, if grass is wanted. In this way a crop of hay may be taken the same year that it is sown.

Seeding Swamp Meadows.—"W. H.," Wythe Co., W. Va. Timothy and Red Top or Orchard Grass, are suitable kinds of grass for moist meadows. If too rough to plow, the surface may be cut up and loosened with the sharp disc harrow, which leaves the ground in better condition than by plowing and ordinary harrowing.

Tumors in Cow's Teats.—"H. G.," Crathie, Ont. The tumors or nodules which form in the cow's milk ducts are difficult to remove; the duct, however, may be opened by means of an instrument made by inserting a small blade of a penknife in a slit in the side of a thin piece of whalebone rounded at the end and polished; the instrument is inserted in the duct, and the edge of the blade which projects a sixteenth of an inch cuts the tumor and opens the passage. A small wooden plug is put in the duct to prevent closing until it heals.

Raising Calves without Milk.—"J. A. S.," Dracut, Mass., gives the following hints as to raising calves without milk. I find oil meal preferable to either meal, flnd feed, or shorts, first boiling the oil meal in water before mixing with the skim milk, and taking especial care that the "porridge" be of the temperature of new milk, and commencing at first with a tablespoonful of the oil meal. Giving porridge of any kind to calves, warmer than new milk, will be almost sure to "scour" them.

Soiling Cows.—"J. B. W.," Westminster, Mass. Directions for growing fodder crops are given at the proper season in Hints for Work. Those hints should be read carefully every month, as they are intended to give information on most farm operations that will meet all except very unusual cases. "Quincy on Soiling" is the only book on this subject. This system of feeding will pay best where manure and fodder are the dearest.

Grass without Plowing.—"S. W.," Seneca Co., Ohio. Meadows may be improved by harrowing and sowing fresh seed, and using some fertilizer or fine manure. It is not always necessary to turn under a sod to re-seed with grass. In the majority of instances it may be done better in the way indicated; but it should not be left until the grass is totally destroyed in large patches and the ground occupied with weeds. It may be done at any time before July, and if 200 lbs. of artificial fertilizer, 20 or 30 bushels of wood ashes, or a few loads of fine manure, be harrowed in with the seed, the catch will be made successful even in unfavorable weather.

Cats in the Poultry House.—"J. S. W.," Suspension Bridge, N. Y. It is difficult to keep cats out of places where fowls can enter. There may be a method of excluding them known to some of our readers which we should be glad to hear of. A cat that will suck eggs should be executed.

To Utilize Bones without a Mill.—"J. N. H.," Palatine, W. Va. Where there is no mill to grind them, bones can only be made useful as a fertilizer by burning; the burned bone contains all the valuable portions except the nitrogen, and as that can not be saved, the loss must be borne as unavoidable. In many places it might pay a miller to have a bone mill.

Mustard as a Crop.—"J. W.," Eau-Claire, Wis. There is very little demand for mustard seed for grinding, and as a fodder crop it has some disadvantages which make it undesirable when there are so many other kinds that are unobjectionable. Mustard may be sown early in the spring and may be pastured, or cut green, when about ready to blossom. If left longer, some seeds will mature to stock the ground and make it weedy.

Materials for Compost.—"E. V. X.," Trappe, Md. Marsh sod, lime, and wood's earth, either by themselves, or mixed with barn-yard manure, will make an excellent compost; saw-dust added would make it too dry. The best use of the saw-dust would be to make litter or an absorbent of liquid manure of it. It might then be used in the compost to better advantage.

The Lilly Butter Worker was exhibited at the International Dairy Fair in December last, and attracted much attention. In the hurry of arranging the details of this exhibition, no premiums were awarded to Butter Workers, an omission to be regretted, and one which will no doubt be remedied another year. The makers of the "Lilly" at the time, complained of the neglect, as they claimed that their machine did the best work of any on exhibition. At the time, we prepared an item to this effect, but it was crowded out by press of other matter. It is but just to say that the "Lilly Butter Worker" has sustained the reputation for which we gave it credit, in Jan. 1878, being simple, easily worked, readily cleaned, and doing good work with a motion closely approaching that of the hand ladle. The Lilly Butter Worker is now made by C. H. R. Triebels, Philadelphia.

"Plymouth Rocks."—Though a recent breed of fowls, the Plymouth Rocks have already attained sufficient importance to have a work devoted to their history, characteristics, etc. Mr. F. H. Corbin, of Newington, Ct. tells the story in a neat volume of nearly 100 pages, which also gives designs for poultry-houses, and useful hints upon poultry management in general. Sent postpaid from this office for 75 cts.

Garget.—"S. P. R.," Richmond Co., Ga. Garget is a disease that requires immediate attention. Directions for managing this trouble have been frequently given in the *American Agriculturist*, and there is not a recent volume without many items in regard to it. The disease is almost always caused by neglect, and may be easily prevented. When it occurs, the treatment is, to give the cow a strong saline purgative, such as 12 to 16 ounces of Epsom Salts, and 1 ounce of Saltpeter the next day; the udder should be rubbed with the hand and fomented with hot water, and if the milk is clotted, a solution of one teaspoonful of baking Soda in a teacupful of water should be injected into the affected teats by means of a small syringe, and milked out soon after. The udder should be treated in this way until it returns to its natural condition; meanwhile, the feeding should be light and the reverse of stimulating. Prevention consists in watching the cow as her time approaches, feeding lightly and drawing the milk, if the udder is full, before calving.

Jersey Red Swine.—Mr. John L. Collins, Moorestown, N. J., already well known as a dealer in small fruits, is also engaged in the breeding of the Jersey Red Swine, which have long been known in portions of New Jersey, and further south, and are now receiving attention elsewhere, as remarkable for great weights at an early age.

Salt on Wheat.—"T.," Ind. See the *American Agriculturist* for last October, page 394, for the effect of salt on land, and how to apply it. To increase your 15 bushel per acre wheat crop, salt is not a very good fertilizer, because, while it *may* increase the crop for a single year, it will tend to exhaust the resources of the soil.

(*Basket Items continued on page* 239.)

The Department of Agriculture.

When he appointed Gen. William Le Duc as Commissioner of Agriculture, the President succeeded in thoroughly surprising the whole agricultural community. It was natural that the placing of a man, before absolutely unknown in agriculture, as the official representative of the most important interest of the country, should cause astonishment, and for a while "who is Le Duc?" was the conundrum of the day. When the appointment was made, it was adversely criticised, and the new Commissioner denounced in advance. At that time, Aug., 1877, we said: "So far as the *American Agriculturist* is concerned, we welcome him to the office with our best wishes for a successful career, and he shall have our support until he proves himself unworthy of it." If we have said little about the Commissioner, it was because there was little to say. The papers, mainly the daily papers, by their Washington correspondents, have made themselves distressingly funny over the Commissioners proposition to cultivate tea in this country. These gentlemen did not think it worth while to ascertain what was proposed, but at once denounced the whole scheme. Now in looking over the career of this present Commissioner, about the only good thing we find in it is the fact that he gave publicity to the suggestion of one of his subordinates that, under certain conditions, and for certain uses, the tea plant might be properly introduced in those parts of the country where it is hardy. For so much we give the Commissioner credit. For the rest we find little to say. We have kept ourselves pretty thoroughly advised as to the interior of the Department, and know that it has been during the present as it has been through former administrations. There is, as there has been, an excellent working force; the subordinate places or heads of departments have been, as a general thing, filled by men capable of whatever work may be required of them. The department has been well equipped in every respect, and only wanted a *head* to enable it to do good work. As we have understood the case, it has been thus: The Commissioner, aware that he knew nothing himself about agriculture and the collateral sciences, was jealous of his subordinates who did know something, and fearful that they should get some credit apart from himself, found means to make the positions of these subordinates very uncomfortable. We have for some time heard the rumblings of the storm that has broken out in the resignation of the Entomologist, Prof. C. V. Riley. It is the old story of Watts and Doct. Parry over again. A man out of place as Commissioner, did not know that in becoming a subordinate, a man of science did not sell his independence or give up his claim to be treated as a gentleman. There is much talk about the forced resignation of Prof. Riley, and great sympathy expressed for him. For our part, we are glad that he is not buried in the Department of Agriculture, but is where the country may still have the benefit of his valuable services. The Washington correspondents state that the enforced resignation of Prof. Riley will lead to a Congressional investigation. We don't think that Riley will care much for this, but we think that the leading seedsmen of the country will like it. The seed distribution as it has been heretofore and is now managed, is simply an outrage. Why should the seed-trade, of all others, be selected for the opposition of the great U. S. Government, and these goods be *given away*, while all other trades are allowed to sell their goods without Government interference? But if seeds are to be given—or thrown—away by the Government, why should not all seedsmen have a chance in supplying them? Seeds went from a former Commissioner's own farm. Are anybody's "sisters and their cousins and their aants" now furnishing seeds? This seed-trade has been a stumbling block heretofore; how is it now? If there is to be a Congressional investigation—and we hope there may—it need not bother itself much with the present Commissioner. The matter lies deeper than that. The Department was established, if we mistake not, in 1862. It has had a trial of 17 years—What has it done? We do not array the sums that have been appropriated—for we hold that had they been ten times as large, they would have been well expended had they helped agriculture at all. If there is an investigation, let the investigators start at the bottom and first ask—Do we need a Department of Agriculture—if so, what for? What shall be its duties, and how shall the Department be made useful? The agriculturists of the country have a right to demand that if the Government meddles with agriculture at all it shall do so in a manner that will not belittle their pursuit. They do not want a Department that seems to be run for but two ends—to afford an asylum for some nobody, and to send out poor seeds at public expense. Thus far the affair has been simply ridiculous. The first Commissioner was Newton, ex-milk-man, who held his place through kitchen influence at the White House—the story connected therewith doing more credit to Mr. Lincoln's heart than to his judgment. Then followed Col. Capron, who for the time he held the place at least made it respectable, but the Emperor of Japan called louder than Uncle Sam, and he went. Then we had Mr. Watts appointed, it is said because he was hospitable to the then President while he was on a fishing excursion. Watts was great on the signs of the Zodiac, and when he took his pen in hand the English language had to "get up and git." We never knew how Watts went out, but he went—Le Duc came in, and there we stop.

Pearl Millet.—Peter Henderson.—The "Planter and Granger."

The *American Agriculturist* catches it! A paper called the "Planter and Granger," published at Atlanta, Ga., gives us, so to speak, "a piece of its mind"—not openly, but over the back of Mr. Peter Henderson. As a general thing, when such journals attack us, we feel like the blacksmith whose little wife used to beat him; when a friend remonstrated with him for allowing such domestic relations he replied: "It doesn't hurt me, and seems to do her lots of good."—When such attacks are made we usually ignore them altogether, the thing of all others most annoying to the assailants. In the present case we might pursue the same course were not our contributor, Mr. Henderson, attacked instead of ourselves. The article in question says that Mr. Henderson "is making a great blow about his 'Pearl Millet.' He has written marvellous accounts of its wonderful productiveness and richness, and is selling seed in fancy paper packages at $1.60 per pound. * * * The Pearl Millet is nothing in the world but the well-known 'Cat-tail Millet.' * * * Any quantity of the seed can be bought of ——, Atlanta, for 20 cents a pound, something of a saving over $1.60 a pound. This Millet can be cut four or five times a year. The writer has raised it for several years, having a small patch in drill for cutting green for cattle. Now Mr. Henderson is making a good thing out of it. He has by sharp management, big blowing, and judicious advertising, gotten up a sensation and a big run on it. It is an old thing under a new name. It is this sort of clap-trap business that does harm to agriculture. Pearl Millet is treated by Mr. Henderson as a new forage plant when it is an old one. * * * We hope our exchanges will explain this and all such similar frauds, that people may not be defrauded. The Cat-tail Millet is a fair forage plant, and every farmer should have a patch for green soiling. But let no one be simple enough to pay Mr. Henderson his extravagant fancy price for seed under a fancy, spurious name, when the same thing under its proper name can be bought for one-sixth the price."—This is the "Planter and Granger's" rather rambling and incoherent indictment against Mr. Henderson. It is a well known rule, *falso in uno, falso in omnibus*—false in one, false in all. We can test the strength of the indictment by examining a single clause. This writer says: "Pearl Millet is treated by Mr. Henderson as a new forage plant when it is an old one."—Let us see about this. Mr. Henderson's first publication concerning this plant appeared in the *American Agriculturist* in Nov., 1878, p. 420. His article begins: "Pearl Millet has been cultivated for some years as a forage plant in some of the Southern States, as 'African Cane,' 'Egyptian Millet,' 'Japan Millet,' and in some places as 'Horse Millet;' but little was known of it at the north before last year."—Does this look like treating it as a "*new* forage plant?"—Were it worth the while, we could show the falsity of other statements. The article charges that Mr. Henderson offers the seed under a "spurious name."—We are interested in that charge, for so far as we are aware, we were the first to publish the name "Pearl Millet." In January, 1878, we gave an engraving and description of the plant; we had five names by which the plant was known in different localities from which to choose, three were geographical names, which are also applied to other plants, and thus confuse; one was "Horse," of no special fitness, and the other "Pearl," having reference to the appearance of the seed, and that

was chosen as the least objectionable name. We were not then aware that there was a high authority on names at Atlanta, Ga., or we might not have dared to select a name without asking permission. That name "Pearl Millet" is fixed, however persuasively this writer may wave his "Cat-tail." We say "fixed," as all the accepted rules for establishing a name have been complied with—what these rules are, a high authority that can pronounce names as "spurious" is supposed to know. Even were his "Cat-tail" a "Cat-o'-nine-tails," we shall continue to call the plant "Pearl Millet," and if asked why, will quote the old song, which says:

"We allus call'd him Sambo,
A'kase it was *his name*."

Those who are accustomed to "read between the lines," can readily see the animus of this unwarranted tirade against Mr. Henderson. The plant was written of by others long before Mr. Henderson published any thing about it. Indeed, some one made a "great blow" about this same plant as long ago as 1858, and, we will add, for Mr. H.'s comfort, that person still lives. If we mistake not, other seedsmen advertised the seed before Mr. H., and all the leading dealers offer it with impunity, while he alone gets the abuse. The article means just this: "We have long had an excellent forage plant, but never thought to tell any one about it. Some sharp chaps got hold of it and tried it, they then went and made a 'great blow' about it, and people wanted seeds; they just went and sold seed, all they could get, at a dollar or more a pound, while our seedsmen would have been glad to sell their seed at 20c. a pound. We'll publish the head one of these sharp chaps, which his name it is Henderson, as a fraud. We can't deny what he has said about the plant, because we know that, and more, to be true; but he don't call it by the name it is known by in all our neighborhood, and we'll get him on 'spurious names,'—yes, and he gets five or six times more for his seed than our people can, and that's an 'extravagant fancy price.'"—We would suggest to the "Planter and Granger" that numerous seedsmen advertised as early as February and March Pearl Millet at $1 per lb.—we have seen none at $1.60. A little business enterprise would have suggested to those who have "any quantity of the seed * * for 20 cents a pound" to advertise the fact in the *American Agriculturist*. But instead of this they prefer to abuse Peter Henderson. This article is written entirely without Mr. Henderson's knowledge, as an act of justice to him—and having perhaps done as much as any one to make Pearl Millet known, partly in our own defence. The article in question is not only libellous, but a libel with malice, and we have not the least doubt that in any proper court Mr. H. would be awarded exemplary damages from those who have promulgated it. The article has been copied by other journals—indeed, we only learned of the existence of the "Planter and Granger" from seeing its libel accredited to it in other papers. What the "Planter and Granger" may do is of the least possible consequence, but is it too much to expect that respectable journals, who have inadvertently copied this libel, will inform their readers that the charges against Mr. Henderson have been shown to be groundless?

Moles—Traps and Poison.

The request for the experience of our readers in ridding their grounds of moles has brought out a large number of designs for traps, some of which seem to be novel, while others appear to be like those we have already published. We have not been able to study and compare these and have the needed engravings made for this number, but hope to do so for our next issue. Besides the use of traps, there have been other methods suggested for getting rid of moles. One of these is to open a run carefully, and drop into it a little gas-tar. The mole in passing through the run will get so bedaubed that he will leave it in disgust. But will he not make another run, and thus increase the trouble?.... Another correspondent, "J. P.," Jr., Fairfield Co., Conn., says: "Take a small piece of dried Cod-fish skin, and place it in the runs, and the moles will never trouble you any more. I have never known it to fail." ....Another says he soaked peas in a solution of Sugar of Lead, and had fair, though not complete success.... In the matter of poisoning, several correspondents agree in advising the use of Strychnine. We give the substance of a letter from "V. D. V. N.," Hightstown, N. J., as the most direct of any of the several letters on the use of Strychnine. We recollect that in our only visit to Hightstown, many years ago, we found the good Isaac Pullen sorely troubled with moles in his strawberries; he was using a trap which he thought effective. Our correspondent writes: "I would say that traps have been used about here for many years, and the moles, in the places where they have been used, are about as thick as ever. I have used Strychnine with complete success. Take a kernel of corn, and with the point of a small knife raise a portion of the germ [or 'chit' as it is often called—the white soft place in the center of the grain.—ED.] In the cavity thus made place a bit of Strychnine the size of a pin's head, or a little larger; press the raised portion down smooth, and place the grain thus prepared in the runway, covering it up so that no other animal will get at it. The first time the mole comes that way, it will eat the corn. Rats, mice, and moles always attack the germ of the grain first, and for this reason we put the poison there." As several have written of their success with Strychnine (some first soaking the corn, others soaking peas, and introducing the poison in a similar manner), the method appears to be worth trying.

Bee Notes for June.

BY L. C. ROOT, MOHAWK, N. Y.

SURPLUS HONEY.

As early in June as the stocks become populous, and honey is being gathered freely, preparations should be made for securing surplus honey. If box honey is desired, the boxes should be arranged in place upon the hives. If extracted honey is preferred, extra empty combs

TWO-STORY HIVE.

should be supplied for the purpose. These may be placed at the side of the brood-combs, if space is afforded, or at the top, by using the two-story hive, as shown in the engraving. The manner of adding empty combs will depend upon the kind of hive used. If there is not a supply of empty combs for this purpose, frames filled with comb-foundation may be used. This foundation was described in last month's "Notes." The cells will soon be drawn out and the combs completed. As fast as boxes are filled, remove them, and replace with empty ones, having a care to not put on many near the close of the honey yield.

Box honey should be kept in a *dry* dark room. It should be examined occasionally during the warmest weather to see that the moth does not disturb it. If signs of moth-worm are detected, the boxes should be placed in a box or barrel and fumigated with brimstone. Extracted honey should be kept in a warm, dry place, in open vessels, where the moisture may be evaporated, and the honey properly cured.

SWARMING.

In northern latitudes natural swarms will issue most freely during this month. The management best for the bee-keeper to adopt, will, of course, depend upon his object. If increase of stocks is his aim, entirely different methods will be necessary than if surplus honey alone is desired. If the latter is the object, and no increase is desirable, it will then be necessary to determine in what form the surplus is to be obtained. If it is to be taken with the extractor, the beginner may reasonably expect to be successful in preventing swarming, but if box honey is desired, swarming will be more difficult to control. If the store combs are emptied with the extractor once a week, or oftener, room is given the queen to deposit eggs freely and ample facilities for storing honey are provided as well. For these reasons, stocks so managed seldom attempt to swarm. There are many reasons why this mode of securing surplus is preferable. Unrestricted natural swarming is never desirable. If box honey is preferred, perhaps the safest course for beginners to follow is, to allow one swarm to issue from each stock, and prevent all after-swarms, as this practice will most nearly meet the demands of the average season, giving moderate increase, and a fair proportion of surplus honey. Hives for swarms should be kept in readiness. When a swarm issues, hive it, and place it at once upon the stand it is to occupy. On the issue of a swarm, it is desirable to take one or two combs of brood from the old hive, and after removing all queen-cells from these, place them in the new hive that is to receive the swarm. This will usually prevent them from leaving for the woods. The place of these combs in the old hive should be filled with empty combs or frames filled with foundation. About three days after the swarm is hived, the boxes from the old hive, which will usually be partly filled, may be placed upon the new one, where they will be completed much sooner than if left upon the old hive.

PREVENTING AFTER-SWARMS.

To prevent after-swarms, it will be necessary to supply the old stock with a queen. This may be done by removing all queen-cells (cutting out with a sharp knife) and introducing a laying queen. Or, if it is not thought best to procure a queen for this purpose, the stock may be left until eight days from the issue of the swarm, and then, all queen-cells but one should be removed; the cell thus left will soon hatch. The largest and most fully matured cell should be selected for this purpose. There is the disadvantage in this method, that the stock is left too long queenless. When it is borne in mind, that, under the most favorable circumstances, a prolific queen will deposit 2,000 eggs per day, the benefit of keeping all stocks supplied with a laying queen at all times, is obvious. Unrestricted natural swarming is open to the same objection. If any desire to run their bees entirely to increase, rather than surplus honey, it may be done by dividing, or, in other words, making artificial swarms, without waiting for them to issue naturally. When a stock is populous enough to spare a swarm, take out one card of brood with the old queen, put it in a new hive, and place it upon the old stand. Remove the old hive with the remaining combs, (filling the vacancy with an empty comb, or foundation), and the bees adhering to them, to a new stand. This should be done on a fine day, when the old bees are working freely. These will return to the old stand, while the bees adhering to the combs in the old hive are mostly young, and will remain in the new location. This last colony should be at once supplied with a laying queen, previously provided. This course may be repeated as often as the condition of the stocks, and yield of honey will warrant.

ANSWERS TO CORRESPONDENTS.

PEA-BLOSSOMS.—"Do bees gather honey from pea-blossoms?"....Not to any great extent.

BEES IN A BUILDING.—"Will bees do well, if kept in a barn or other out-building?"....Yes, if proper alighting boards are arranged outside.

SEALING EXTRACTED HONEY.—"A. A. R.," New Jersey, asks "When extracted honey is put in cans or jars, should they be made air-tight?"....Unripe honey should not be sealed up until the moisture is thoroughly evaporated. When well cured, it may be sealed.

Spreading Manure.

The old-fashioned method of plowing under manure has become obsolete. Good farmers now no longer follow old fashions because they are old, but having become used to think for themselves, and knowing much more of the science of their art than was known a score of years ago, they are ready to strike out new paths for themselves. The common method with manure now is, to keep it as near the surface, and to intermingle it with the soil, as much as possible. We have discovered that in feeding plants we must not only place the food within easy reach of the roots, but must also supply the best food in the best condition. These conditions are secured by a thorough mixture of the manure in as finely divided a condition as possible throughout the upper three or four inches of the soil.

The best practice is, to spread the manure upon the plowed ground, and to work it in with the harrow. This is most conveniently done by having manure in a fine condition. Fine manure may be made in two ways; either by piling it and rotting it in the heap, or by using only short litter. It is found in practice that it pays to cut the litter with a fodder cutter, so that it will not only absorb more of the liquid manure, but that it can be easily spread when fresh. The ordinary harrow will then mix the manure with the soil in the most effective manner. With long manure the work is not so easily done, but it may be accomplished by persevering. The manure will be drawn into heaps, doubtless; but by freeing the harrow and spreading these, and harrowing again, and again if necessary, the desired result will be attained. There are some improved kinds of harrows which do this work much better than others. The sloping tooth harrow acts favorably by pressing the manure into the soil, and drawing the earth over it; the flexible chain harrow has the same effect; but the steel

disc harrow not only does this, but it cuts and breaks up the long litter, and reduces it to fragments. This harrow consists of a series of thin, sharp-edged discs, which revolve upon axles in a different direction from that of the movement of the implement. Each disc thus not only cuts into the soil, but it throws up a small furrow of light soil behind it, this latter effect being assisted by the concave or saucer-shaped form of the disc. The result is very satisfactory either when sod has been turned down (and this comes under the head of manuring), or when coarse manure is to be spread; the soil, too, is left in a very favorable condition for sowing or planting. These short hints may be found seasonable at any time, because the making and use of manure is a work of every day in the year in one way or another, or should be.

A Run Through the Peninsula.

Editorial Correspondence.

During the past year we have published Editorial Correspondence setting forth the advantages of Kansas, Nebraska, Minnesota, and other Western and North-Western States for those seeking new homes. There are other regions of country in the East and South, which likewise hold out inducements to those who may desire to engage in fruit raising, gardening, or general farming, and who re-

MAP OF THE PENINSULA.

quire a warmer climate than is found in the far West. One of these regions is the Peninsula bounded by the Delaware Bay, and the Atlantic Ocean on the east, and the Chesapeake Bay on the West, and commonly denominated "the Peninsula." It comprises the entire State of Delaware, the Eastern shore of Maryland, and two counties of Virginia. The area embraces about 6,000 square miles, of which 3/5ths constitute the State of Delaware, 1/5ths the Eastern shore of Maryland, and 1/5ths are within the limits of Virginia. The climate is mild and genial. The soil is easily cultivated and the seasons are early. Baltimore, Philadelphia, and New York are within easy distance, and lands formerly comprising large plantations, are now being divided, and can be purchased from $10, up to $100 per acre. The population of this Peninsula now amounts to some 300,000. It is claimed, owing to the above reasons, that there is room here for a population of fully 1,500,000. During the month of May, we made a pleasant trip through this region of country, and were favorably impressed with what we saw, especially in Delaware. The accompanying map shows the route we travelled. The native inhabitants appeared desirous to have Northern people settle among them, and the latter,—those with whom we conversed,—appeared well pleased with their new homes.

Inducements for Manufacturers.

Leaving the main line of the Philadelphia, Wilmington and Baltimore R. R. at Delaware Junction, near Wilmington, we soon reached the venerable city of New Castle, which, as an inducement to manufacturing interests to locate within her limits, exempts manufacturers from all taxes for a period of ten years. The Triton Cotton Mills, the Tasker Iron Works, Steel Rolling Mills, Flour Mills, Cotton Warp Mills, and other industries are in full operation. A few miles further south we entered a tract of rolling country, dotted with handsome residences, and herds of Hereford and Shorthorn cattle. Fine crops of wheat and corn are also raised here, and large orchards of apple and peach trees meet the eye in every direction. Buena-Vista, the former home of John M. Clayton, Secretary of State under President Taylor, was pointed out. It is now managed entirely by its owner, Miss Douglass, a niece of the deceased statesman.

The Great Peach Region.

From Bear Station, fine farms are seen on both sides of the railroad. Reaching Kirkwood, we entered upon the great peach district, 100 miles in length, and having an average width of 30 miles. The land is rolling, and has a red clayey subsoil with a sandy loam. At Mount Pleasant, the eye rests upon a level country, extending from bay to bay, covered with farms devoted to peaches, strawberries, blackberries, apples, etc. One of the farmers stated to us that corn here yielded from 40 to 60 bushels per acre, and wheat from 25 to 30 bushels per acre. Extensive hedges of Black Thorn and Osage Orange are to be seen. Four miles west of this station lies Wheatland, the former home of Major John Jones, a great agriculturist in his day, who was one of the founders of the United States Agricultural Society, and was also very active in having the Department of Agriculture established at Washington. The farm is now owned and cultivated by his son, John A. Jones, who has invented several agricultural implements.

Shipping Peaches.

Nearing Middletown, we passed the Fair Grounds of the Peninsular Agricultural and Pomological Association. The annual exhibitions here are largely attended by people from the surrounding country. Middletown, 24 miles from Wilmington, is in the center of a rich farming district. Though wheat, corn, and cattle are raised here, the peach crop is the main industry of the farmers. The fruit is shipped to Milwaukee, Chicago, St. Louis, Buffalo, Toronto, New York, Boston, and other places. While New York is the main point of destination, the shippers make serious complaints against the charges of the commission merchants of that city. The prices from Jersey City to the stalls in New York are beyond all reason, they assert. The cars for the transportation of fruits are built upon passenger springs and trucks, are well ventilated, and fitted up with strong shelves, upon which the fruit is securely stowed. Fruit loaded on the cars will stand transportation over 1,000 miles, or from 50 to 60 hours of continuous running, if gathered in proper condition.

Leaving Middletown, we passed several establishments for preserving fruit, by evaporation. The road lay through one continuous series of peach orchards, until we reached Townsend, the junction of the Kent County and Queen Anne's Railroad. This is the highest altitude of the Peninsula, being 96 feet above the tide level. The land is of a heavy clay, and well adapted to grass and wheat. Nearing Green Spring, we entered upon an area of small fruits, and thrifty cherry orchards of "Early Richmond." Here connections are made with the Kent County and Chesapeake Railroads; the former running to Chestertown, the county seat of Kent County, and the latter to Easton, the county seat of Talbot County.

Fine Fruit Farms.

It is a matter of regret that time would not allow us to visit Kent Co., Md., where, in the vicinity of Chestertown, are located some of the oldest and finest fruit farms of all this region. Not far from Chestertown are the orchards of the late Col. Edward Wilkins, by whose death, last December, the country lost one of its most intelligent and enthusiastic fruit growers. His orchards were, at one time, the largest on the Peninsula, and consequently the largest in the world. Near by are the celebrated orchards—largely in pears, of Mr. Emory, and those of Mr. Blakiston, and others, which we should have been glad to visit had they not been outside of our prescribed route. Comparatively little of the fruit from this district goes to New York and other northern markets, the bulk of it being taken by the canning establishments at Baltimore. The operations of Col. Wilkins were on so large a scale that he ran his own steamer from the wharf at his orchards to Baltimore. Those who live here, claim that it is one of the garden spots of the Peninsula. Considering the fact that the inhabitants are confined, in their season, to Oysters, Soft-Shelled Crabs, Terrapin, Canvas-back, Red-heads, and other Ducks, with no end of fish, while there is a profusion of fruit, we must say that they manage to survive in spite of their surroundings.

Dover.

Passing Brenford and Moorton we reached Dover, 47 miles from Wilmington, and the capital of the State. It is a very pretty place, of some 2,000 inhabitants, having a post-office which cost $70,000, and several other fine public buildings. Not far from the town are seen the handsome grounds of the Fairview Park, an agricultural society which gave its first exhibition last year. Among other industries we visited here were the canning works of Messrs. Richardson & Robbins. They have about $175,000 capital invested, and put up fruits and meats to the value of about $250,000 annually. As many as 180,000 pounds of poultry have been consumed in the canning operations here within three months' time. Twenty-four years ago, Mr. Richardson, who is a Massachusetts man, started the enterprise in a small way by canning peaches with the aid of a cooking stove. The tomb of John M. Clayton is pointed out to visitors in the Presbyterian Church-yard. Dover is the residence of Judge James Alexander Fulton, whose "Peach Culturist" is the standard work on the cultivation of the peach.

An Old Subscriber.

Near Wyoming Station, a few miles from Dover, we visited the farm of Mr. A. H. Carey, who has been a subscriber to the *American Agriculturist* for a score of years. Mr. Cary went from New York State to Australia, and after remaining there thirteen years among the mines, came to this spot some thirteen years ago. He now has a most flourishing farm of over 400 acres, which embraces about 75 acres in peaches and apples, 15 acres in pears, 20 acres in blackberries, 10 acres in strawberries, and 12 acres in raspberries, mainly "The Queen of the Market." He has also several head of Jersey cattle on his place. The adjacent fruit farm of Mr. J. G. Brown, formerly of Pennsylvania, will likewise repay a visit. It consists of 400 acres, of which 200 are laid out in peach trees. Fifty acres are de-

voted to the new raspberry, "The Queen of the Market." This variety is found to be specially adapted to this region of country, and promises to supersede all other varieties. Wyoming is mostly a settlement of Northern farmers.

The Ross Farm.

From Woodside, large shipments of fruit are made to Western buyers. At Felton, we passed another settlement of Northern families. Bridgeport is also a large shipping point, being the center of an extensive fruit district. A few miles further on, we visited the large farm of Ex-Governor Wm. Ross; it is now managed by his son, Mr. Jas. A. Ross, who, after being educated abroad, has become a practical farmer and fruit-grower. This is one of the model farms of Delaware, numbering over 1,200 acres. It embraces, among other things, 350 acres of peaches, 75 acres of blackberries, 40 acres of pears and apples, 25 acres of strawberries, etc. There is a very fine flock of Cotswold sheep on this farm. At Seaford there are a number of oyster packing houses. After crossing Nanticoke River, which is generally regarded as the dividing line between the peach and small fruit districts, we passed on beyond the Delaware boundary to the quaint old city of Salisbury, Maryland. Proceeding eastward we tarried a short time at Berlin, which is also an interesting old place; in this portion of the Peninsula many of the former large plantations remain undivided. Lemuel Showell (a popular farmer), owns 10,000 acres. His father-in-law, Col. Jacobs, has 15,000 acres. Land ranges in price from $10 to $50 an acre.

A New Watering Place.

From Berlin, we rode a few miles further eastward to Ocean City, a new watering place on the Atlantic Ocean beach; it was started five years ago, and now embraces five hotels and three boarding houses. After spending the night here, we returned through Berlin to Salisbury, and taking the railroad South, proceeded to Crisfield. Here large numbers of people are engaged in the oyster business, and there are many acres of new land made entirely of oyster shells, extending into the Tangier Sound. On our way, we were shown the farm of Ex. U. S. Senator Dennis, lying near Kingston, and comprising some 1,500 acres. Dr. Dennis is a practical farmer and his broad acres present a very handsome appearance. Close by, is the old Washington Academy, which has educated many of the leading men of the South; the building, however, is now in ruins and is occupied by negroes.

The Westover Estate.

Leaving Crisfield, we proceeded northward to Westover, on one of the inlets of Tangier Sound in the Chesapeake Bay. The old Westover estate, numbering over 1,000 acres, was, a few years ago, one of the leading plantations of Maryland. After the war it changed hands, and came into the possession of a gentleman from New Jersey. Four years ago Mr. I. N. Mills, the General Agent of the Delaware Division of the Philadelphia, Wilmington and Baltimore Railroad, came down here from Wilmington and bought 350 acres of the last purchaser. This Mills' farm is now under a high state of cultivation, and pays a very handsome investment on the purchase money. The splendid peach and berry crops which it produces shows what can be done by energetic management in this part of the Peninsula. What is now needed for the growth and development of this region is to break up all of these plantations into small farms. Owing to the direct railway communication, fruits and vegetables are quickly transported to New York and Philadelphia, and other northern markets.

Princess Anne.

Leaving Westover we tarried a short time at the interesting old village of Princess Anne. There is a good deal of wealth in this place, and it figured prominently during the war. The leading citizens with whom we conversed, stated that the outlook for all crops was good, and that they were anxious to have men with northern capital settle among them. Having made the circuit of the Peninsula, we returned to Wilmington, well pleased with the appearance of the country, and convinced that it presents an inviting field for those who would like to engage in the raising of fruits and vegetables. The peach season of Delaware generally continues about forty-five days, beginning usually from the 15th to the 20th of July, or 10 days earlier than in New Jersey. Strawberries, especially the early ones, were somewhat injured, and they are not in so forward a condition as last year at this time. As a whole, however, the peach and berry crops are most promising, and it is computed that there will be close upon 5,000,000 baskets of peaches shipped to market. The railroad company is doing all in its power to assist the owners of the old farms and plantations who are willing to cut up and sell their lands to northern buyers. Mr. J. T. Budd has been placed in charge of this work of encouraging the development of the Peninsula, and can be communicated with at Middletown, Delaware.

Valuable Dairy Prizes.

The business rivalry of the leading English salt manufacturers, in their endeavors to secure a prominent position in the American market, and the enterprise they show in their efforts to this end, indicate the importance of our market to their trade. While their efforts are made with a view to their own profit, they cannot fail to have an effect upon American Dairy products, as the means taken to bring their salt into notice, by offering premiums to makers of butter and cheese, must incidentally tend to improvement in those articles. We last year noticed the money premiums offered by one house in the salt trade. Another establishment, Messrs. Thomas Higgin & Co., of Cheshire and Liverpool, England, has chosen a different method of calling attention to their salt. Instead of money, they offer medals of gold, silver, and bronze. In doing this, they incidentally call attention to another industry in which this country is not excelled by an other—the manufacture of gold and silver. Instead of sending the medals from abroad, the Messrs. Higgin & Co., have properly recognized the fact that American artizans can produce whatever may be required in this line, and through their representatives in this country, gave an order for the medals to Messrs. Tiffany & Co., of New York, a house with a world-wide reputation. The medals, which we have examined, sustain the reputation of the makers for the production of artistic work. Those only who are familiar with the processes by which medals are produced, are aware of the difficulties attending them. Whether there is to be one medal or a thousand, a *die* has to be *sunk*. A block of steel is made as soft as possible by annealing, and in the smooth surface of this, the design for the medal has to be made, by cutting away and punching away the steel. This requires great skill on the part of the workman, as the whole design has to be *reversed*—what will be upon the medal the highest, or the portion the most raised above the general surface, must be, in the die, sunk the deepest. A glance at a coin—a half-dollar, for example, will make this plain. The eagle and the lettering, which appear raised above the surface on the coin, have, in the die, to be correspondingly below the surface. When the die is perfected, the soft steel is hardened, and is ready then to be used for

Fig. 1.—THE HIGGIN'S MEDAL—OBVERSE.

stamping the medals. But the medal, like a coin, has two sides, and each requires two dies. When both are ready, they are arranged in a powerful screw press, and a blank of metal of the right size, is placed on the lower die, and the upper one brought down upon it with such force as to squeeze the metal into the depressions of the die, so that when taken out it will show raised upon its surface, that which was below the surface in the die. Whoever has stamped a pat of butter, can understand this. The stamp represents the die, with the design below the surface; the butter—unlike it in every respect save the *golden* yellow—will stand for the metal. Imagine a force as much greater than is used for the butter, as the metal is harder than butter, and no difficulty will be found in understanding how the medals are "struck up." There are 72 of these medals; 24 each in gold, silver, and bronze; the silver and bronze medals are alike in size, the gold medal being perhaps one-fourth smaller. These in sets of three, are to be offered as the first, second, and third prizes for butter and cheese in the principal dairy States. We understand that these will be competed for at the State

Fig. 2.—THE HIGGIN'S MEDAL—REVERSE.

fairs, and we presume that special notice will be given when the details are fixed upon. To give an idea of these premiums, we present here engravings of both sides of the silver medal. One side represents such a scene as may be noticed on any farm, with two cows in very life-like positions of repose. On the margin is the legend, "The Higgin Medal for the Improvement of American Dairy Products." The reverse of the medal has an encircling olive wreath, with the words: "Presented by H. K. & F. B. Thurber & Co." Below, is a blank space in which is to be engraved the name of the fortunate winner of the medal, and the product for which it was awarded. Such prizes are well worth striving for, and while they are offered in the way of business, their results will be none the less beneficial to our dairy interests, and it is but just to say that Messrs. Higgin & Co. have chosen a method to forward their own interests, which will benefit others as well as themselves.

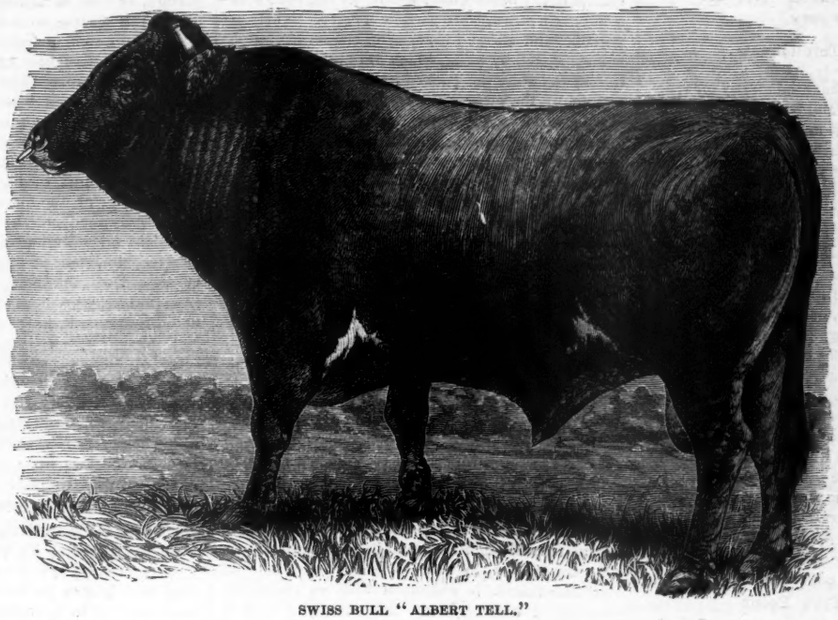
Pearl Millet—How to Dry.

BY PETER HENDERSON, JERSEY CITY HIGHTS, N. J.

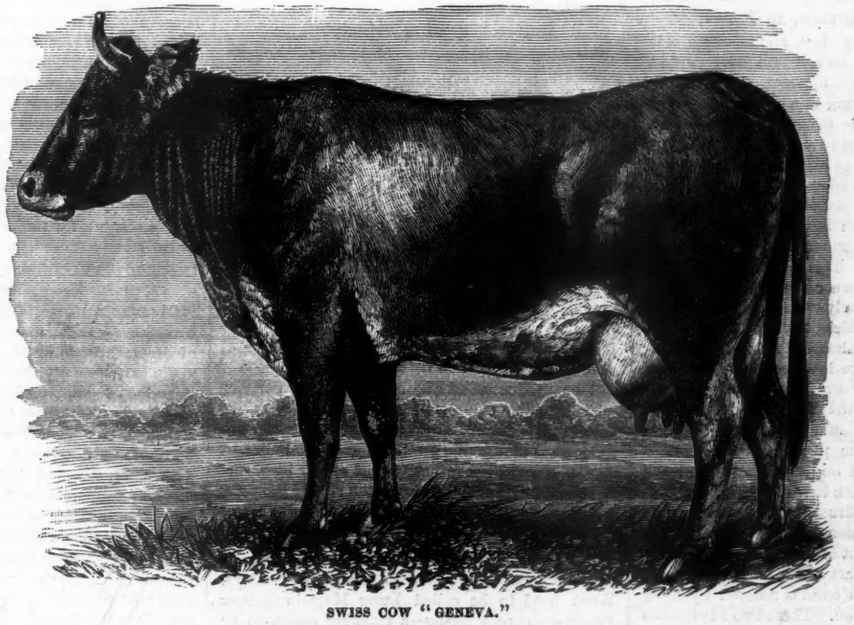
Since I published the result of our experiments with Pearl Millet last season, in your issue of Nov., 1878, I have had scores of letters enquiring the best manner of drying it for "hay." Our crop was sown in a solid block, so that when cut it had to be removed from the land where it grew, and tied in sheaves and hung up on extemporized single rail fences. This plan of course would not answer when grown on a large scale, for the yield is so enormous that such an expedient for drying would be too expensive both for the labor and rails—and as it is too heavy and succulent to be dried like Timothy and Clover on the ground where it is cut, it must be removed, as the attempt to dry it where it grows would destroy the second crop. Circumstances of course must, in a great measure, be the guide, but I would suggest that when grown for the purpose of being dried, that it be sown in beds say 12 feet wide, with alleys of six feet between, on which it may be dried; this would be a loss of one-third of the land for the first crop, but there would be little or no loss in the second crop, for the Millet would spread so as to fill up the alley

Swiss Cattle.

Switzerland has long been renowned for its kine, and their product of cheese and butter, and the Swiss herders are noted in poetry and song. The picturesque dwellings, and attire of the herders, their beautifully colored cattle, gaudily decked for the *fete* days, and their pastures in romantic vallies, and upon mountain sides, backed by snow and ice-covered granite peaks, have furnished numberless subjects for the pencil of the painter. To bring these dun or chestnut-colored cows from their peculiar surroundings into strictly practical business relations, where they must stand solely on their own merits as profitable stock for the farmer, would seem to be a hazardous experiment. But it has been done, and with substantial success, by Mr. D. G. Aldrich of Worcester, Mass., who possesses the first, and we believe the only, established herd of this breed in America. By the courtesy of Mr. Aldrich, we are able to give portraits, which are presented on this page, from photographs of a bull and a cow of the Swiss breed. We have now in this country almost every race of valuable cattle that could be procured from abroad, and this breed holds a high position among the best of these, and promises to be an important acquisition to our stock, for use in certain localities. The habits of these cattle have been formed by long association with peculiar natural surroundings; they have been reared and kept for centuries for the dairy, and have been fed upon valley pastures, with comparatively light herbage; from these they have been removed in the summer months, to high mountain sides, where they have grazed among the roughest rocks, at an elevation of 7,000 feet and more above the sea level. As a consequence these cattle have become robust, vigorous, and healthful in constitution, active in movement, and thrifty feeders. They are therefore well adapted to our hilly and mountainous districts, and may readily become naturalized in New England, the eastern mountain districts, and the vast vallies and foot hills of the Rocky, and more western mountain ranges. Probably no other breed is better prepared by natural adaptation to a wider usefulness in America than the Swiss. Having been used to close association with their owners, and almost constant herding in confined and narrow pastures, where the range is very limited, their disposition is unusually gentle, and their docility has become proverbial; the horn of the Swiss herder with which these cows are called home in the evening, and the jingling bells which hang around their necks, to the music of which they march homeward without being driven, have been so often written about, as to be familiar even to those who have not traveled. These features are attractive, but their popularity must, after all, depend upon the question of profit, and the pail and the churn are the real tests. In this respect the Swiss cows have made an excellent record. "Geneva," whose portrait is here presented, has given 30 quarts of milk; averaging, for 12 days, 26¼ quarts daily, and has yielded 3 lbs. of butter in 24 hours milking. This cow was dropped in 1867, and was imported by Mr. Aldrich. A cow, "Bessie," out of "Geneva," has the following record. Yield of milk from Nov. 1, 1877 to Dec. 31, 1878, 10,905 lbs.; yield of butter, for the same time, 573 lbs. She dropped a calf on August 11, 1878, was not dry during the 14 months, and from the 1st to the 13th of August, the milk was not weighed. The feed of this cow was roots, meal, and bran, (quantity not given), in the winter of 1877; grass and fodder corn in the summer of 1878; and hay, roots, and meal in the winter of that year. There are very few cows that can show a better record than this; the owner claims it to be the best well authenticated record in existence. This cow was purchased from Mr Aldrich, by Mr. D. G Roberts, Pittsfield, Mass., in Oct., 1877. The bull, "Albert Tell," whose portrait is given on this page, is out of imported cow "Zuric," and sired in Switzerland. These cattle are large, and, as the engravings show, well formed: in color they are light to dark chestnut-brown: the lighter shade is more particularly manifest in a narrow line along the back, on the inside of the ears, and in the hair between the horns; the horns are short, of smooth texture and tipped with black. The nose is black, and is surrounded by a light colored band; a yellow strip extends from the middle of the lower lip to the upper lip, and up the sides of the nostrils. The switch, hoofs, and tongue, are black; the hind leg is straight, the thighs wide apart, and the hind quarters are heavy. These marks are very persistent in the breed, a fact which denotes the purity and integrity of blood, maintained for a long period; otherwise there would be inevitably, occasional cropping out of variations caused by reversion to irregular ancestry. No other principle of breeding is more certain than this: when a persistence in the reproduction of form, color, and general appearance, is a marked characteristic, it may be taken as an indication, that other, and more valuable qualities will also be permanent. After all the obloquy that has been cast upon the fashion for solid colors in various cattle, the idea has at least this value, viz: that the breed is capable of reproducing a fixed type, and if one element of this is reproduced persistently, it strengthens the probability that others will also be. In this respect, at least, the Swiss breed are strongly constituted, and their hereditary characters are remarkably persistent. The Swiss cattle fatten readily, and reach a weight of 600 to 900 pounds net. These cattle have become distributed among farmers in several localities, and so far, as we have heard they have proved satisfactory to their owners. The enterprise of the gentleman who imported the original herd, and that of Mr. Aldrich, who purchased it, are worthy of commendation, and as we can not have too many nor to great a variety of good cattle, it is probable that this first importation may be followed by others, so that the breed may become as generally diffused as it deserves to be. It would be wise and important, however, that importation should be made with judgment and honesty, and that the example of some importers who are more remarkable for their skill in preparing herds for sale, rather than for choosing for merit alone, may be avoided



SWISS BULL "ALBERT TELL."



SWISS COW "GENEVA."

lest harm be done at the outset. There are in Switzerland other kinds of cattle than the one we have illustrated; these are peculiar to different localities; they are more or less modifications of the principal race and of less importance than these.

Among the Farmers.—No. 41.

BY ONE OF THEM.

Money-saving Implements.

When money was too plenty, when "greenbacks" were, so to speak, a drug, and used chiefly for speculation, we were paying $2 and $2.50 a day for day-labor, and hardly thought it important to do much to save work, and to lighten other labor than our own. We wanted machinery to take the place of man-power and horse-power, simply because we could not get the men—not because we could not pay them. Now our circumstances are greatly changed. We have more labor than we can pay for ready to be employed at low rates, and yet invention was never more active in devising machinery to take the place of labor, or to cheapen production. That is the great thing—to *cheapen production*. If butter is to bring only 20 cents per pound, we must produce it for half that. If we can calculate on getting only 4½ cents for our pork, 5 to 7 cts. for beef, and similar low rates for other things, we certainly must raise our corn, and other crops at a proportionately less cost than we have been doing, or we shall lose money all the time. The British farmers have been in much the same position for some time, and the general excellence of their implements and their *lasting* character, albeit heavier than we like, show how wisely they economize. Last year the introduction of a convenient

Reversible Plow Point

was a great stride in the right direction. By it, the labor of the team in plowing is greatly lightened, because the share may be kept sharp and true, and the point itself always well shaped and sharp enough. One share, with several "slips" or points, lasted me all summer, and it seems likely to last a good part of this year, the points being renewed and reversed as often as need be. Ordinarily, we use up three shares, at least, in our gravelly soil; common shares cut away very fast. We do all our plowing—that is, both sward and stubble—with one plow "19½," and an excellent little plow it is....This year the effort is being made to induce farmers to use

The Sulky Attachment to Plows,

which is applicable to any plow, and affords a seat for the plowman, while he can still have perfect control of both plow and horses. At first sight this seems like labor-saving at a costly rate, namely, at the expense of the team. If I see a hired man add his own weight to a load that is about heavy enough, he learns pretty soon that his place is on the ground. This plow-sulky, however, is a very philosophical affair, not only guiding the plow more accurately than can be done by most plowmen, but making it run lighter, even when carrying the plowman's weight. This seems hardly possible, yet it is clear when we consider that the plow is a three-sided wedge, only one side of which, the mould-board, does any efficient service, the sole and the land side, only contributing to hold the mould-board in position. There is a deal of friction between the sole, or more correctly speaking—the underside of the plow and the ground, and hardly less between the land side and the "land." This sulky attachment to the plow has a wheel under the beam, in front, and one running behind the plow in the furrows, which take *all* this ground friction, and the lateral thrust, made by the single large wheel running upon the land, which is increased when the weight of the plowman is upon the seat, takes a great part of the friction off from the land side. Thus the team is relieved by doing away with useless friction. These two advantages are certainly proved to be all that was anticipated, and perhaps more....Among the *untried* and yet most promising things, as an agricultural help, is

Ensilage, or the Tanking of Fodder.

This practice on a small scale, in principle, at least, is ancient. I remember seeing in the Bavarian Palatinate, many years ago, and in some parts of Switzerland, also, tanks like tan-vats, conveniently near to the stables, altogether below the surface of the ground, water tight, and covered with substantial lids, which were strong enough to sustain the weight of a man, at least. My recollection of these tanks is, that they were 8 or 10 feet long, and about 5 in width, and perhaps 6 feet deep. I was told that partially dried grass, weeds, leaves, etc., with some grain straw, were packed down as tightly as possible, and allowed to ferment, the fermentation being checked by water, which did not entirely stop it. More fodder was packed in as the mass settled, and finally, the vat was filled with water, and closed down as nearly air-tight as possible.

Here we had all the conditions supposed to be essential to the successful tanking, or *Ensilage*, of Fodder, as practised by Mr. Goffart, in France, or Colonel Morris in Maryland, besides the additional security of the water, which, in the case of tanking corn fodder, cut up when green and juicy, would rarely ever be necessary, if at all.

The process, and the tanks or *silos*, have been so well described in the *American Agriculturist* that all its readers must know in general about them. The present season will afford to the skeptical, and to the "old fogies," abundant demonstration of the usefulness and profit of the practice. The use of tanked green fodder will enable us to make milk and butter as profitably at one season as at another. It will probably enable us to save one-third of the cost of fattening beef in winter. The effect of a moderate quantity of green feed in both milk and beef production, is well known. This gives roots their value as winter feed—making grain go much farther than it otherwise would. Roots are a form of green fodder, in which a small percentage of nutritive matter is combined with an enormous quantity of water. In the tanked fodder (call it "ensilaged fodder" if you will), we have a larger percentage of nutritive matter which has undergone a partial cooking process, thus enhancing its digestibility, and which has not destroyed the coloring and flavoring qualities of the fodder. The fact, if substantiated, that it may be so preserved as to

Impart Color to Butter,

makes the practice a very attractive one to gilt-edged butter makers. How far this has been tested I do not know, but it is certain that the *chlorophyll*, the constituent of grass, and green fodder generally, which imparts color to butter—is not destroyed by the tanking process.

Butter Flavoring Principles.

Whenever hay is so preserved as not to lose its green color, it imparts a better and more grassy flavor, as well as a higher color, to butter. This is accomplished by cutting very young and storing without thorough drying. I have seen clover-hay, or rather clover not half cured, stacked up between layers of cut straw, which opened out in February and March as fresh, sweet, and green, as if it had been cut but a day or two before, the blossoms retaining their looks and fragrance. It is important to know if, with the slight modification of color which the tanked fodder undergoes, it may not also be true that those equally fugitive qualities which give flavor to butter may not also be preserved.

Soiling in Summer and Tanked Food in Winter

will be productive of the best crop a farmer can raise, namely, manure. Whatever system increases that, is a boon. We all know that when cattle are soiled the manure pile grows faster in summer than in winter, and the continuation of soiling by means of the tanking system through the rest of the year, will give both bulk and value to this product of the farm upon which every thing else depends.

The Lung Murrain.

We reduce every thing to science now-a-days. What used to be called Lung Murrain is now *Pleuro-pneumonia bovina*—a startling name, to be sure, but none too much so. Lung Murrain is a disease both infectious and contagious in a high degree, affecting neat cattle only; it is often very fatal, and although not at once destroying the usefulness of the animal, and causing little alarm, gradually, though sometimes rapidly, renders useless a portion of the lungs. The part of the lungs thus affected is, in the cases which recover, encysted, and shut off from the rest of the system. It may remain so, as I understand it, a long time, but whenever the animal gets a severe cold, lung fever or anything of the kind, the disease will break out again, to such an extent, at least, that it may be communicated to other cattle in the same stable or pasture, or even in adjacent fields. This is what makes the disease so hard to manage—it is this that makes a rigid quarantine of infected herds, and the ultimate slaughter of every exposed animal, the only safe course. The existence of this malady in the "swill milk stables" of the vicinity of New York, has long been known, and the danger to the agricultural community, often pointed out by the agricultural press. So long as it was only the farmers who were hurt, or likely to be, no body cared, but the moment the mercantile interests, shippers and ship owners, and the "cattle trade," the railroads and all concerned in the traffic in cattle, were affected, the whole country was aroused, the States of New York and New Jersey, and the General Government, all took prompt action, and are doing no half-way work, so far as I can see. Certainly, New Jersey has a well organized, prompt, and kind force of inspectors and officers. They respond quickly to any calls made upon them, their examinations are very thorough, and they maintain rigid quarantine wherever necessary. They have killed but very few cattle so far, and put cattle-owners to just as little expense and trouble as is consistent with the safety of the herds of others.

The Murrain has been Spread

chiefly by cattle dealers, in bringing cheap cows from the city and its vicinity into the country. These cows may have been sold cheap, just because they were known to have the disease; or to have been exposed to it, or possibly they may have been sold innocently. It would continue to spread thus were it not for the vigilance of the inspectors. My own farm is only six or eight miles from the nearest point where the disease is known to be, and I feel that the only security I have, is in interesting my neighbors to absolutely prohibit all driving of cattle along the roads, and to prevent wandering cattle from pasturing in the woods which are unfenced. This is the only way in which neighbors can protect themselves. Cattle having the Murrain in its first inception, if in good condition, may be properly killed. The beef is not affected, and neither is the milk. The disease is entirely confined to the lungs until it is considerably advanced. During this period the animal can hardly be termed *sick;* it will cough a little, but eats well; is clear-eyed, and shows no other sign of disease. I believe the doctors do not consider that there is danger of spreading the disease through marketing such beef and milk. This is fortunate, if true, for many of the sick cows are in the hands of very untrusty people, who will sell the milk and market the beef to the last minute. I hope the Inspectors will be vigilant in this respect, for the present season's work must be the last, or there will be little hope of thoroughly stamping out of the disease.

Disease among Turkeys.—A correspondent complains of a diarrhœa among turkeys in his part of Massachusetts which prevails so generally, that many have been obliged to give up the raising of this kind of poultry. He says: "The symptoms which I first notice are these: The appetite falters and they stand around moping only a little at first, but more as the disease advances. From 3 to 5 days after the first indications a diarrhœa commences, the appetite fails, and they sit on the ground in the coldest place they can find. They gradually waste away and die in about 10 days. Sulphur and a little saltpetre will sometimes check the diarrhœa, but does not remove the cause. It is very rare that one is saved by any treatment, and if left alone they invariably die. The young ones are attacked from 6 to 8 weeks old, until they are grown up. On examination the disease seems to be in the intestines, on the part between the gizzard and vent. The diseased parts are very much swollen and inflamed, very tender, nearly decayed, and smelling badly. The liver is 2 or 3 times the usual size, and the gall very large." We should be glad

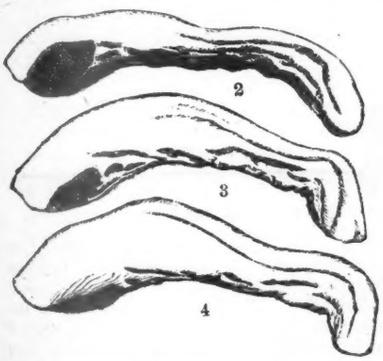
to hear from any of our breeders who are acquainted with this disease and know of a remedy.

Over Fattened Meat.

It is possible that breeders and feeders of beef, mutton, and pork, are not aware of the enormous waste which occurs in the consumption of their products. Of late the tendency has been to produce so-called improved animals which are bred for early maturity, and are inclined to an excessive deposition of fat. Fat is not the most valuable part of the meat; a certain proportion, intimately mingled with the lean, in a manner known as "marbling," is desirable, and tends to make the flesh tender, juicy, and digestible. But when the meat consists of a small portion of lean, surrounded

Fig. 1.—LOIN OF OVER-FATTENED BEEF.

by enormous layers of fat, it is neither agreeable nor healthful food, nor is it economical in use. So long as such meat as this is purchased, though at a great loss, by the consumers, breeders will produce such cattle; but it is not a fact that consumers desire such meat, or patiently suffer such waste to be inflicted upon them. The patience of the American citizen is well nigh inexhaustible; he submits to that of which he disapproves without more than a murmur, because he dislikes the trouble that would grow out of a remonstrance. But the English consumer is proverbially a grumbler, even when he is well served, and he is now complaining that he is getting too much useless fat with his meat. As we have followed the English fashion in stock breeding, and have bought largely of their improved breeds at enormous prices, so we are already producing meat such as theirs, to which English consumers object as wasteful; and we may well take a lesson from our neighbors in this matter. The "Agricultural Gazette" (England) has recently instructed its readers in this respect by producing copies of photographs of joints of meat from ordinary good, and highly improved animals. One of these, fig. 1, is an illustration of a piece of



LOINS OF PORK.—Fig. 2. GRADE BERKSHIRE.—Fig. 3. IMPROVED BERKSHIRE.—Fig. 4. IMPROVED ESSEX.

a loin of beef from a highly bred Shorthorn. It is seen that the lean, shown by the dark shading, is very small; and is surrounded by an enormous quantity of fat, which seriously diminishes the value of the meat for the consumption of any one but an Esquimaux or a traveller in the polar regions. Figures 2, 3, and 4, respectively, illustrate cuts from the loin of pork; the first being from a grade Berkshire pig, the side of which weighed 68 lbs. This may be taken as an excellent sample of pork or bacon; the second is a cut from a side, weighing 74 lbs., of an improved Berkshire, which had the generally desired and fashionable qualities (among breeders) of shortness, roundness, and thickness. The improvement in this case consists in substituting fat for meat. The third is a cut from an improved Essex pig, which is seen to be nearly all fat. The side from which this last was taken weighed 70 lbs., and the lean in it was reduced as low as is perhaps possible, and yet to give the animal sufficient muscular power to carry its load of fat. Figure 5 represents a cut from a Red Jersey ham taken from a 10 months' old pig which weighed 280 lbs. When cut up for use, this pork had so little lean as to be uneatable, and of the 280 pounds gross weight, 263 lbs. was rendered into lard, only 17 lbs. of lean meat being saved for use, and this was intermingled with sufficient fat to cook itself in the pan. The comparison between a Berkshire or other pig, in which the sides are deep and the lean is in fair proportion with the fat, and a pig of the fashionable roundness and shortness in which the lean exists in such remarkably small proportion, is very great, and suggests the question, if we have not gone as far in growing fat as may be profitable, and if it would not be desirable to cater more for the economical consumer of meat than for the tallow or lard-rendering kettles.

Fig. 5.—JERSEY RED HAM.

Plowing with the Swivel Plow.

Notwithstanding many attempts, which have been more or less successful, to improve the swivel plow, this useful implement is still far from satisfactory. The chief objects sought in improving this plow have been, the smooth turning of the furrow slice, and the perfect clearing of the mould-board. Whether or not these can be secured in any reversible plow, is still a question. A certain form of plow is absolutely necessary, and a form, too, which is unfavorable to the objects sought. Nevertheless, there are many patterns of these plows which do passably good work; and the great advantage of being able to reverse the plow, and work back and forth in consecutive furrows, instead of plowing in lands, renders some form of swivel plow very desirable, especially in preparing for corn or for fodder crops. For these purposes the swivel plow is almost indispensable. In plowing for corn, the planting may go on with the plowing and harrowing; the ground that is plowed to-day may be harrowed and planted to-morrow. To plant upon the fresh, mellow soil, is an obvious advantage, and it also helps much in the forwarding of the work. The swivel plow is a great convenience when crops are grown for soiling purposes. If the fodder is cut, either by the scythe or the mowing machine, in narrow strips, across or along the field, the plow can follow from day to day, and the ground may be re-sown at once, without waiting for enough to be cleared to make a "land," and it will not be cut up with frequent back and open furrows, but be kept smooth and level.

The action of a plow with a clogged mould-board is not always objectionable. In using an old-fashioned swivel plow, we find the effects of the clogging to be such a mellowing of the soil and such a smooth laying of the surface, that the seed may be sown or drilled-in without any use of the harrow. When the plow scours, and the mould-board is kept free, it is only by a packing or pressing of the furrow-slice by which it is made comparatively solid; and before it can be sown or planted, the ground must be harrowed. While the swivel plow as now constructed may not be exactly suited, as yet, for its work, nevertheless it is an implement that could be used with advantage in a much larger variety of work than it now is.

Large and Small Cows.—The desire for large animals is not always judicious. With cows it is questionable if the largest are the best, when the cost of feeding is considered. There are cases in which a dairyman's fancy for large showy animals may be justified, and it may be granted that a stable well filled with large, showy Dutch, or Shorthorn cows, is a very pleasing exhibition. But when we come to figure up the cost of the product, it may be a question if the same amount of food were expended upon an equally good looking herd of Ayrshires, the milk might not be more cheaply produced. Where the final end of the cow is considered, and the amount of beef is an object, that of course alters the bearings of the question. But bigness in cows is not always best either for beauty or profit to the owner. The same remark will apply to horses.

How to Lay Out and Shape an Ox Yoke.

O. H. Leavitt, Androscoggin Co., Me., sends the following method of laying out and making an ox yoke. Every ox owner or driver knows, or should know, that upon the shape of the yoke and the fitting of the bows depend much of the ease and effectiveness of the working of the cattle. Mr. Leavitt's method is as follows: Elm of the toughest kind is the first choice for timber. For oxen of 7 feet girth, or 3,000 lbs. to the pair, the stick should be 6 feet long and 12 inches in diameter. The side of the log that will be the top of the yoke is hewed, and marked at the center, and 15 inches from the center each way for a 2-inch bow hole, and 12 inches further from the center for the second bow holes. A chalk line is snapped lengthwise in the center of the timber, and where it is intersected by the former marks the bow holes are bored. These holes must be bored exactly perpendicular and true, and one will be better able to do this by standing over his work, and after the auger is started, to step aside and notice if it is straight in every direction. Care should be taken to have the log level. The yoke is then marked 4 inches thick at the center where the band for the draft ring comes; 10 inches thick midway between the bow holes; and 6 at inches

Fig. 1.—TOP OF YOKE.

from the outer holes, 5 inches thick for the ends, measuring these distances so that the chalk line is in the middle. These marks are then connected by a regularly curved line, and the outline of the top of the yoke is made as at fig. 1. Then lay the stick on the side and mark out the hollows for the neck 3 inches thick at the center between the bows, and 4½ at the end, as at fig. 2. The center is hollowed 3 inches from the straight line at *A*. The position of the staple and ring depends upon the work for which the yoke is to be used; for drawing a wagon or cart, the ring should hang low; for plowing, the yoke should not be so deep on the under side, and

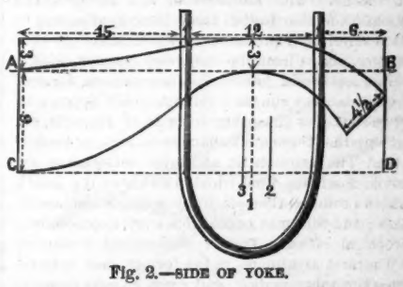


Fig. 2.—SIDE OF YOKE.

the ring should hang high. The hollow for the neck should be marked out by drawing the line, 1 (fig. 2), in the center between the bow holes down to the lower edge of the yoke; the line 2, one inch nearer the end, and the line 3, half an inch the other way from the line 1. The line *A*, *B*, is 3 inches from the top. A pair of dividers is set as wide as the bows, and with one foot at 1, a curve is marked towards the staple for the under side of the hollow; then move to point 3, and make the curve for the under side towards the end. Then from the point 2 make the curve from the top of the yoke to the end for the upper side. The bows are shaped as shown in fig. 2, 10 inches between the insides on the line of the holes; 9 inches at the

line *C D*, which is 8 inches above the inside bottom of the bows and at the point of the shoulder; and the length of the bow from the line *A, B*, to the inside of the bottom bend, to *C*, is 18 inches. To finish the yoke when made of green timber, build a fire out-of-doors, plug up the bow holes with potatoes or something else that is green; lay the yoke on the fire, and when it is hot and begins to crack on the cross-grained places, remove it and rub in grease or oil, until the wood will absorb no more. Repeat this until the yoke is evenly charred all over a sixteenth of an inch deep, when it should be scraped and greased again while hot, and rubbed with rags until no black will come off, when there will be left a black polished surface with a handsome finish that will not fade or soak water.

Bog-Spavin and its Treatment.

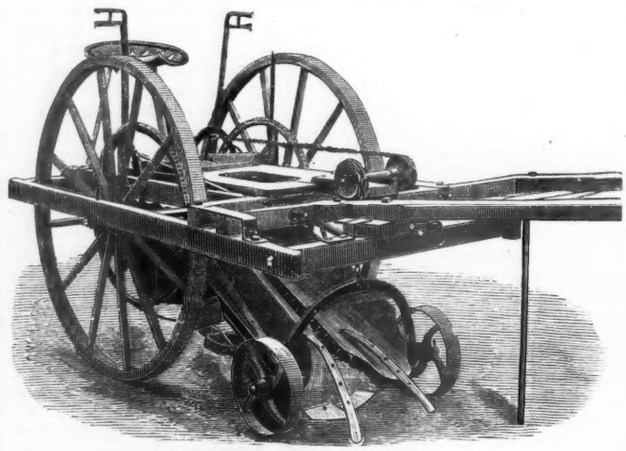
The disease known as "Bog-Spavin," and a form of the same known as "Thoroughpin," are of frequent occurrence. The fact that lameness sometimes attends the swelling—the visible symptom of the disease—and sometimes does not, leads to a confusion of ideas upon this subject. This may be easily explained as follows: Bog-Spavin is of two kinds, both of which present the same outward appearance, so far as the puffy swelling is concerned, but they differ in the important point that in one there is inflammation, tenderness and lameness, while in the other there are none of these, and only an inconvenient blemish results. It is necessary, therefore, to distinguish between these two forms. The more serious is that caused by inflammation of the hock joint; this may occur from over-work, rheumatism, sprains, or bruises. There is a soft swelling on the inner, fore, upper part of the joint, where there should naturally be a hollow. Sometimes the swelling occurs upon both sides of the joint, and on pressure upon either side the swelling is pushed through the joint, and increases upon the opposite side, fluctuating back again when the pressure is removed. This is "thorough" or "through" pin, the former word having been, years ago, used synonomously with the latter. The lameness in this form of the disease is similar to that from Bone-Spavin, and in its result it may produce the worst effects of that disease, viz., ulceration and bony deposit, with a permanently stiff joint. The less serious form of the disease is a simple swelling, which appears to be the same as the other form in all respects, excepting that there are no lameness, heat, or tenderness. The cause is an excessive secretion of synovial fluid (the fluid which lubricates the joint), which produces the soft, puffy characteristic swellings; and this may occur from over exertion, or a dropsical effusion from constitutional weakness.

PAD AND BANDAGE.

The first treatment, in the former case, is to reduce the inflammation, and exert an easy pressure upon the swelling, to induce an absorption of its contents. In the latter case, the pressure, with cold applications, are sufficient. These, in both cases, may be accomplished by using a padded bandage in the manner shown in the engraving. This may be made by any person, in a few minutes, from some strips of stout leather, a few rivets, and two buckles. The pads may be made of pieces of sponge, wrapped in wash-leather or buckskin, or sheet-rubber. The upper strap is buckled loosely around the leg, above the hock, to prevent the bandage from slipping down, as it is held by the side straps. The lower strap is provided with a pad, or one for each side, placed so as to exert a steady pressure upon the swollen parts. At the same time, cold water dressings are applied, or astringent applications, such as weak mixture of tannic acid and water, or an infusion of white-oak bark. The lotions may be made more effective, as regards coldness, by the addition of ice or a small quantity of saltpeter to the water. Rest is necessary during treatment, and unless the causes that produced the trouble are afterwards avoided, it will be necessary to soon repeat the application.

A Bean-Pulling Machine.

The success of the bean crop largely depends upon the proper harvesting; indeed, this is the most important labor connected with the crop, as it must be done neither too early nor too late. No doubt that many a grower of beans has wished for some mechanical aid in the tedious task of pulling the plants. Mr. H. B. Morrison, of Genesee Co., N. Y., wished this, and began some time ago to embody his thoughts in a machine, which, after various modifications, he has brought to such perfection as to warrant him in applying for a patent for it. The engraving, from a photograph, shows the exterior of the Bean-Puller as it now appears. The machine is simply constructed. It consists of the driving wheels which run on each side of the row, a pair of shafts in which the horse travels on one side of the row, so as to avoid trampling on the beans. The adjustable frame of the machine is hinged to the axle, the pullers being attached by their hinder ends to the front end, resting on two small wheels at the front; the extended gathering fingers taking up the plants or "bushes" from the ground, and conveying them to and between the front ends of the central space of the frame, while the extended share loosens the roots so that the plants are taken up the inclined plane and dropped to the rear in rows. The shafts are so arranged that the driver can direct the draft and guide the pullers along the rows, following any deviation from a straight line that may have been made in planting.



A BEAN HARVESTING MACHINE.

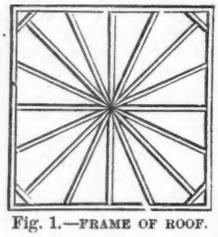


Fig. 1.—FRAME OF ROOF.

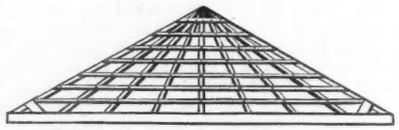


Fig. 2.—ROOF READY FOR THATCHING.

The pullers may be raised or lowered, or thrown in and out of gear by the driver without leaving his seat or stopping the horse. One great advantage of the machine is that the beans need not be pulled until they are nearly cured, without being shelled and lost, while they are freed from earth, and damage by soiling is prevented. Machines for pulling two rows at once can be made. It is unnecessary to describe further the advantages resulting from the use of the bean-puller; these will be obvious to the practical bean-grower.

Cheap and Easily Made Barracks.

Some time ago we gave directions for building barracks for hay or grain, which were too costly for those without some money at command to purchase the materials. A plan is here given for making these conveniences, with materials that need not cost one dollar, and which may be built by any one having an ordinary amount of skill. Four poles, 20 feet long, are set in the ground, 16 feet apart, about 4 feet deep. These poles should be of durable timber; the part set in the ground is to be left of the natural size, being denuded only of the bark, and the remainder may be hewed down to a neatly tapering form. Holes are bored in these poles, and pins of wood or iron inserted, to hold up the roof. The frame of the roof is made of 4 sills, halved and pinned together at the corners, and having a short cross piece pinned at each corner, 18 inches from the end, as may be seen in figure 1. Light poles for rafters are then fitted into the cross pieces, into 2 inch holes, the part inserted in the timbers being pinned fast with half inch pins. Similar poles are fitted into the sills, in the same way, and may be gathered together at the top, as shown at fig. 2, and secured by an iron band, or may be bound together by fence wire. Some cross strips of flattened poles or split hoop-pole stuff, are then pinned with half-inch pins, or bound to the rafters, with hickory or white oak withes, softened and toughened in a fire. The frame is then thatched with straw or bog-hay, in the manner described in the *American Agriculturist* for July, 1874, p. 257. The result, seen in fig. 3, is a stiff, substantial structure, which will hold 8 to 10 tons of hay or sheaf-grain, and preserve it as well as if it were in the most costly barn. In filling a barrack of this kind, the hay may be built out 2 feet each way wider than the roof, making the stack 20 feet square, up to near the top, when it may be gradually drawn in, and raked down from top to bottom, the loose hay being thrown upon the top. The roof is then let down upon the hay, which is thus completely protected from the weather. The roof is raised or lowered by means of the lever shown at fig. 4; this is rested upon a pin placed in a hole in the post, and the pivoted end is placed under the corner of the roof, which is raised by depressing the handle of the lever.

Fig. 3. BARRACK COMPLETE.

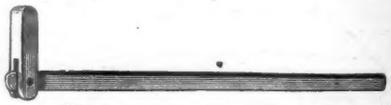


Fig. 4.—LEVER FOR RAISING ROOF.

Roots.—A small piece of ground not otherwise occupied, may very profitably be used for roots. It is an easy matter, now that artificial fertilizers can be so readily procured for this crop, to put in an acre or so. Sugar beets may be sown in June, Ruta-

bagas, in June or July, and turnips, in July or August, and no other crop which can be grown, gives better returns for the labor and trouble than roots.

Making Split and Shaved Shingles.

It is difficult to point out a roofing material better, on the whole, than well made shingles. If well made, well laid, and properly prepared for use, they may last a lifetime, which is as much as can reasonably be expected of any roofing. Shingles may be made of any timber that splits well and will not curl up after repeated wetting and drying. Pine, cypress, and cedar, are the best materials for shingles; chestnut, oak, ash, hemlock, and other woods, may be used when the former can not be procured. The first step in making shingles is, to saw the timber into blocks of the proper length—14, 16, 18, or 24 inches, as the case may be. The block is then split into segments, as shown in fig. 1, by means of a tool known as a frow (fig. 2), and a

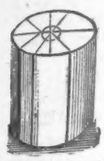
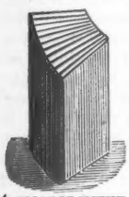


Fig. 1. BLOCK.

Fig. 2.—FROW.

Fig. 3.—MALLET.

mallet (fig. 3). The blocks are freed from the sap wood and the heart, and are then split down the sides in the manner marked at fig. 4, into shakes (fig. 5). The shakes are then held in a shaving-horse (fig. 6), and by means of a drawing-knife, figure 7, shaved down to a sharp edge at one end, and smoothed at the sides, when they are finished shingles (fig. 8). It is important to have the original blocks sawed true and square at each end, else the shingles will be imperfect, and the butts, which are exposed on the roof, lie irregularly. When finished, the shingles are put up in bunches of 250, or 400, each—that is, of so many nominal, not actual, shingles; a shingle being held to be only 4 inches wide. So that one 8 inches wide, counts as two, and one 6 inches wide, counts as one and a half. Thus, a bunch of 25 courses (on each side) with a 20-inch band, will have 1,000 running inches of shingle, equal to 250 shingles; or a 32-inch band with 25 courses will contain 400 shingles. The manner of packing shingles, and the press used making the bunches, is shown in figure 9. There are several kinds of shingle-machines which saw them out of the blocks, and by using these, the shingles may be made of timber which will not split, even cross-grained timber, or that with knots, if these are tight, may be used. A sawed shingle roof lies closer than one of split shingles, but as there is a fuzzy surface left by the saw, they soak more water, dry more slowly, and are less durable than the other.



4. SPLIT SEGMENT.

5. SHAKE.

The Care of Young Turkeys.

It is a joyful morning to the farmer when he discovers his first brood of young turkeys following the cautious tread, and the low cluck of the mother, as she leaves her nest. The critical season of turkey raising is now before him. Upon his constant care and watchfulness for the next three or four weeks depends his success and his profits. It is a matter of the first importance that the care of the young broods should be committed to some one individual. There is no substitute for personal responsibility in carrying the young chicks through their first month. They are very tender, and they have many enemies from the start. The mother bird has wise instincts, to guard her brood against harm in a state of nature, but in domestication, she needs close watching to guard them against birds and beasts of prey, against roaming for food too early in the morning, and especially against storms. If the farmer can not attend to this himself, he should put the care upon some one else, who will look after the broods at short intervals during the day, and see them properly sheltered for the night. Women who have a fondness for the work, make the best guardians of the young broods. Each little flock should be counted every night, as they come to their roost, and if any are missing, they should be looked after. They can be controlled in their wanderings, at first, by frequent feeding. Like all other birds, they follow the feed very strictly, and will not wander very far from food that is regularly and bountifully supplied. On most farms where turkeys have been raised for many years, the insects are kept down by these ravenous birds, and there is a dearth of animal food, especially in the early part of the season. This must be supplied in some form very soon after the young turkeys begin to eat. On dairy farms, the most convenient supply is buttermilk, or sour milk and curds, which generally go to the pig-stye. Coarse ground Indian meal, mixed with milk, makes an excellent food for the young birds, of which they never seem to tire. One of the most successful turkey raisers in the circle of our acquaintance, keeps a supply of Indian meal and milk always within reach of the young turkeys. His success is almost uniform, and the two hundred or more heavy Narragansetts that roost upon his poles at Thanksgiving, are good evidence of the wisdom of his feeding. After the first month is passed, and the broods are trained to come home at night, they may be driven farther from the house, and have some liberty. Yet they should be looked after toward nightfall, and the flock be regularly counted, until the season closes. The price of large flocks of large and well fattened turkeys is constant vigilance from May to November.

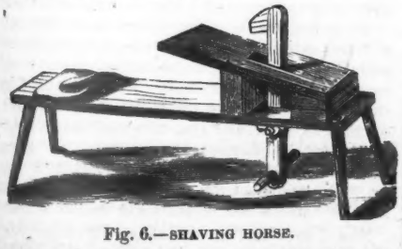


Fig. 6.—SHAVING HORSE.

7.—DRAWING KNIFE.

Fig. 8.

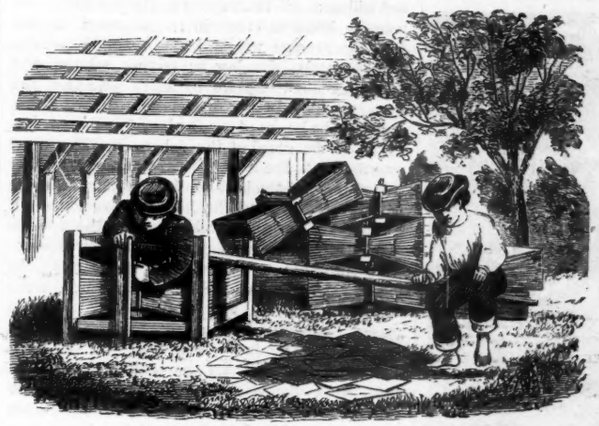


Fig. 9.—PRESSING AND PACKING SHINGLES.

Clean Cultivation.—If any one doubts that the mellowing or loosening of the surface of the ground is of use to moisten it in warm, dry weather, he will hardly doubt that this operation will effect the destruction of weeds. And this work is the most important of the year. It is a principle in physics, that two things cannot occupy the same space, at the same time, and it is equally true, that two plants cannot subsist upon the same food.

Fig. 1.—FEED-BOX.

Weeds rob the crop, and to destroy the robbers, is a work that lasts through the entire season. The earlier it is done, the less it costs.

Hints and Helps for Farmers.

FEED-BOXES, made as shown in figure 1, are convenient either for the cattle to feed from,

Fig. 2.—PORTABLE BARREL AND FEED TRUCK.

or for carrying the feed to them. These are made of ⅞ pine lumber, with flaring sides, 24 inches long, 14 inches wide, and about 8 or 9 inches deep, and holes are made in the ends, to serve as handles, as shown in the engraving. These boxes are more durable than baskets, and cost much less.

A PORTABLE BARREL AND FEED TRUCK.—A subscriber at Albion, Iowa, kindly sends a sketch of a portable barrel for slops, feed, etc., and a truck upon which it may be transported. The truck, shown at fig. 2, has side bars extending beyond the axle to the rear, which are notched so as to receive the arms which are attached to the barrel. The bars of the truck are depressed to catch the arms of the barrel; when the load may be raised and moved off, (see fig. 3). To this, we add a portable box for moving feed in a stable. This box is shown at fig. 4. It has flaring ends, and the sides are brought down 3 inches below the bottom, in such a manner that when it is placed upon the bed of the truck, it

Fig. 3.—BARS OF TRUCK.

rests upon the axle and side bars; the former fitting into the slots in the sides, and the latter fitting inside of the side pieces, by which it is held securely. This will be found useful in feeding cows in a stable, to carry the food from the feed room along the front of the stalls. It will also be found useful in the garden, and about the place for many purposes. The box can be removed, when the truck will be serviceable in many other ways.

Fig. 4.—BOX.

A CHEAP YARD-GATE.—The writer recently made

a gate for a barn-yard as follows: Three fence strips were bolted together by three pairs of upright pieces, these being placed on each side of the strips, as shown in fig. 5. The end strips are made 7 feet long, and a long brace, which is another fence strip, is bolted diagonally across the gate, from the top of the head strips to the bottom of the foot strips. This prevents any sagging. The hinges are bolted to the gate, as seen in the engraving, a short piece being fastened from the heel

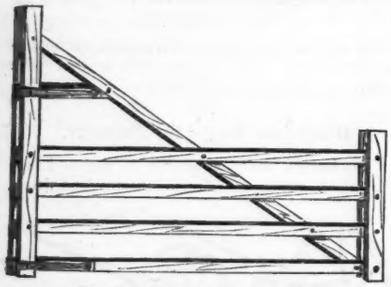


Fig. 5.—A CHEAP YARD GATE.

pieces to the brace for the upper hinge. A gate 12 feet long requires 7 fence strips, 11 3½-in. carriage bolts, 5 2½-in., and 1 4-in. bolt, and 2 pairs of hinges. The latch is a common slide-latch of wood, which fastens into a mortise cut into the post.

DISCIPLINE FOR A KICKING HORSE.—The method (illustrated in figure 6) of curing the habit of kicking in the stable, so frequent with nervous horses, is given, with the accompanying sketch, by a German subscriber. It is to hang in a proper position, be-

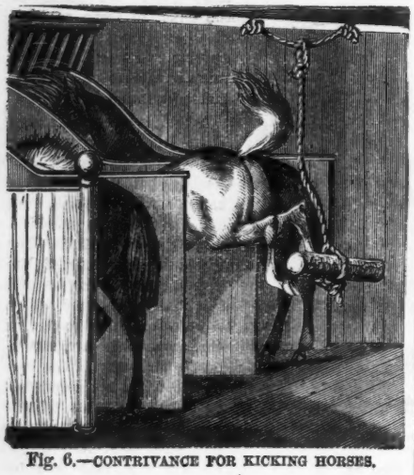


Fig. 6.—CONTRIVANCE FOR KICKING HORSES.

hind the horse, a log of wood, by means of a rope fastened to the beam. When the horse kicks, the log is struck, and that swings back against him, with sufficient force to suggest that his kick is always returned. This lesson is soon learned by him and becomes effective. When not in use, the log is hung up out of the way by a hook upon the beam.

Fish Culture—Its Success Established.

The Thirteenth Report of the Fish Commissioners of the State of Connecticut, presented at the recent session of the Legislature, established beyond reasonable doubt the possibilities of entire success in re-stocking the rivers of the State with shad, salmon, and other migratory fish. It has been known since 1870, when the remarkable increase of shad, as the result of the artificial hatching at Hadley Falls, appeared in the Connecticut River, that the plans of the Commissioners for the reproduction of this fish were entirely successful. There has been a large increase of the catch of shad in the "pounds," at the mouth of the river, and in the sweep-nets and gill-nets at the fishing stations up the river. Shad have been made so plenty at some of these stations, that in the hight of the season, fine fish have been sold at ten cents (10 cents) each. This increase has been so steady, in response to the artificial hatching at Hadley Falls, that there is no room for doubt among intelligent observers. It is not so generally known that the most persistent enemies of fish culture, and of the legislation necessary to its success, have been found among the fishermen, especially those at the mouth of the river. Their pound-nets, extending ten miles west of the mouth of the river, and running a mile or more into the sound, caught by far the larger portion of the shad hatched in the river. This lion's share of the profits of the fishery was altogether too profitable to be given up without a struggle, and it is not until the views of the pound-men can be made to harmonize with the interests of the river fishermen in Massachusetts, Vermont, and New Hampshire, that the shad hatching, suspended for the last three years at Hadley Falls, can be restored. The possibilities of entire success are demonstrated, if Connecticut will legislate to protect the fish, and the people will enforce the laws. Much more solicitude has been felt about the restoration of salmon in the Connecticut than in the case of shad, although in the early days the salmon was the cheaper and the more abundant fish. Occasional plantings, in small numbers, of young salmon in the tributaries of the Connecticut had been made previously, but it was not until 1874 that an adequate supply was furnished. In that year, Connecticut, Massachusetts, Vermont, and New Hampshire, planted nearly 1,200,000 young salmon in the various brooks that feed the river. Previous to last year, only a few adult salmon, the results of the earlier plantings, had been seen in the river. About the last of April, 1878, salmon began to be taken in the pounds at the mouth of the river, and later in sweep-nets and gill-nets, all the way up to Hadley Falls. As many as 500 were taken in the course of the season, the average weight being about 12 pounds. Unfortunately, the law protecting salmon, and punishing their capture by heavy penalties, had been repealed by the Legislature, and the first fruits of the labors of the Commissioners were sacrificed to the greed of the fishermen. They were sent mostly to the New York market, and were reported to be of the best quality. By far the larger part were males, and the loss is not so great as it would have been a year later, when the females make their appearance to deposit their spawn. They appeared in considerable numbers at the fish-way at Hadley Falls, and, although strict watch was kept, it is not known that any of them passed through. The proposed increase of the volume of water in the fish-way, it is expected, will make it available for the salmon another season. As a demonstration of the theory of our fish culturists, that salmon will return to the streams in which they are bred, and that barren rivers can be economically re-stocked, the labors of the Fish Commissioners are a complete success. The needed legislation must follow in due time. The success here should encourage similar efforts elsewhere, as all our rivers may be made to afford an abundance of the choicest fish. CONNECTICUT.

American Provisions in England.—An English paper relates a characteristic business enterprise of the dealers in American provisions in that country, and an instance of the extreme prejudice against our products which exists there. American bacon costs 9 cents per pound at wholesale in the English market, but the largest portion of the imports are retailed as native brands, and not as foreign articles. American hams, which cost when landed, 46 shillings sterling ($11.50) per cwt., (112 lbs.) are repacked, and marked "Belfast hams," and sold to the retailers at 95 shillings ($23.75) per cwt. Long ribs are transmuted into "Irish rolled bacon," and the price doubled; "Cumberland cut" meats, become "English farm fed," and clear middles costing 6 cents, appear on the tables of the retailers, marked conspicuously, "No Yankee Rubbish," "price, 8 pence per pound," (about 15 cents). A fashion prevails of cutting American hams into two parts, and selling one as American at 10 cents, and the other as home cured, at 20 cents. This we can hardly find fault with, as it is not altogether unknown on this side of the water. While the trade is so profitable to dealers, we shall not want for purchasers, and therein lies our comfort.

Science Applied to Farming, LII.

A Talk with our Experimenters.

This enterprise of field experimenting with fertilizers is assuming much larger dimensions than I had anticipated, and I am free to say that I expect a great deal of good from it. Agricultural Science needs the help of practical men to promote its most useful progress. The man of practice and the man of science, the farmer and the chemist, can work advantageously together in many ways, and this is one. Information is needed, and can be got, and there are men who are able and ready to help in getting it. Of the accuracy with which the experiments are made, I have, of course, no means of judging, except the reports and my own personal observations in part of the cases.

HOW WELL LAST YEAR'S WORK WAS DONE.

This, last season, were very gratifying. I took occasion to visit Mr. SAGE while he was planting the corn for his experiments, one of the special trials of the effect of nitrogenous fertilizers on corn mentioned last month. The land was accurately marked out in long, narrow, parallel plots of equal size. Each one of these was divided into eleven equal parts, the divisions being indicated by small stakes. In a little shed close to the field were arranged in order the seventeen small bags of fertilizers. On a small table were a pair of small scales, a sugar scoop, paper, and pencil. Mr. Sage was taking the bags one by one, weighing them, calculating one-eleventh of the weight to the half ounce, and weighing off the portions. Three men were at work spreading the fertilizers. As each one came up he received the small lot of the fertilizer, mixed it very carefully with earth in a pail, went to the short strip where it was to be put, distributed it carefully, going through the length of the strip and back again, and calculating to have a little left over to be put on in going over the ground the third time. In this way the fertilizers were applied to each division of each plot. The object of all this painstaking was to make sure that the fertilizers should be "applied evenly over each plot." Frequent visits convinced me that the whole experiment was conducted with corresponding care.——I visited MR. BARTHOLOMEW'S Experiments when the crops were being harvested. Nearly every hill of corn had exactly four stalks. Those of a certain number of hills, twelve, I believe, were put in a shock. The ears of corn and stalks of each shock were weighed, and the weights noted in a schedule devised for the purpose. By a simple and ingenious arrangement, a spring scale was attached to a cart, which was driven along the rows, so that each lot could be weighed as it was loaded, with very little trouble. Everything, from the arrangement of the plots to the disposal of the corn in the crib where it could be weighed and shelled after it had dried, to determine the loss in shrinking and the number of pounds of ears to the bushel of shelled corn, like the thrifty appearance of the whole place, showed careful, thorough work.——Of PROF. FARRINGTON'S experiments, which I also had the good fortune to see, it is sufficient to say that they had the usual care given to such work by that gentleman and his students at the Maine State Ag'l College.

And yet, with the very great care, thoroughness, and completeness with which all these experiments were made and reported, a large number of others, so far as the reports indicate, were made not one whit less thoroughly. I have been frequently congratulated upon finding such excellent men to work together in these experiments. It is not that I or any one else has found them, but that they have sought the work, and that they represent a large class of efficient farmers who can do and are doing a vast deal to advance the agriculture of the country. The intelligent, progressive American farmer, and his name is legion, is a good deal of a man.

Now, I have said all the above with a purpose. There are thousands of men in the country like Prof. Farrington, Mr. Bartholomew, and Mr. Sage,

who can and will do extremely useful work in this line. Many of them are experimenting this summer. I wish to urge those engaged in the *American Agriculturist* Experiments to make their trials as thorough and complete as possible, and send in accurate and full reports.

FAILURES AND SUCCESSES LAST SEASON—LESSONS TO BE REMEMBERED.

Of course all of the experiments were not as thoroughly made nor as successful as those just mentioned. Some had no decided story to tell, and some none at all, except failure everywhere. Corn was tried on soil not adapted to it, pulled up by crows, and injured by worms. "A lot of small pigs rooted around" one experiment to its great detriment; "the ravages of white grub" rendered another unreliable; "potato bugs" made havoc with a third. Frost and drouth injured a number, and, I am inclined to mistrust, wrong application of the fertilizers still more. One experimenter applied only part of the fertilizers; another did not put them on until five days after planting; another was too busy to complete the weighing accurately; and yet another was sick, and had to leave the details to the hired man. Some of the irregularities I can account for only by unevenness of the soil. We can judge better of this where two or three plots were left unmanured as recommended; but most had only one, and a few none, for comparison. One experimenter, surprised at the high yield of his unmanured plot, found, on closer examination, that it had been getting the benefit of the drainings from the ash-heap of his maple sugar works.

INDECISIVE RESULTS ON RICH SOIL.

One experimenter found "a loss all the way through," and wrote: "According to this showing, it will not pay me to use any manure—not even to move my barnyard manure, which I have always saved and made as much of as possible. I wish you would write me a letter to 'brace me up;' I am getting terribly skeptical." Well, he got 47 bushels of shelled corn to the acre on the unmanured plot. It appears that the field was dressed only two years ago with a lot of that yard manure of which he "makes as much of as possible." Land farmed as well as his report would lead us to think his was, and in condition to bear such a crop with no manure, might easily fail to pay for such costly applications the first year. And with such a store of plant food in the soil, the effects of the fertilizers would naturally be so blinded that the experiment would give very little clue to what the soil would need when it should have only its natural strength to depend upon. I hope he will note the results on the same plots during this present season.

And finally some trials went wrong for reasons which are beyond the experimenter's ken or mine. But a great many had a straight story to tell, and told it every time. And some, which in themselves seemed the least decisive, were, in reality, the most instructive of all. The following are among the many

QUESTIONS ABOUT WHICH INFORMATION IS NEEDED AND CAN BE OBTAINED, ARE:

1. *The Feeding Capacities of Plants.*—By this I mean the power which different plants possess in varying degrees of obtaining their food from soil and air. Clover will gather large amounts of nitrogen where wheat will fail for lack of it. Our experiments of last season imply that corn has in large degree the power of gathering and storing nitrogen. If future experience confirms this as a principle, and we find that instead of buying nitrogenous fertilizers for corn we can, at small expense, for mineral fertilizers, make our corn gather nitrogen to enrich manure for other crops, the fact will be of incalculable value to farming generally, and especially in the older States.

2. *The Specific Effects of Different Fertilizing Materials on Different Crops.*—In last season's experiments nitrate of soda and potash salts were generally profitable for potatoes, while for corn, the potash salts paid in about one-half, and nitrate of soda in but few of the trials. How generally, and where such will be the case, it is important to learn. Indeed the feeding capacities of plants, and the specific effects of different fertilizing materials upon them are among the weightiest problems in the present range of agricultural investigation.

3. *The Effects of Different Fertilizers in Different Circumstances of Soil, Climate, Weather, etc.*, including their direct effect as plant food, their indirect action in bringing plant food already present into available forms, and their effect upon the physical condition, the texture, of the soil.

4. *Comparative effects* of artificial fertilizers and farm manures.

For all these things careful work, close observation, and full and faithful statements of results are indispensable. So let me ask the experimenters to note carefully the details provided for in the blanks for reports, and to enter their observations upon their memorandum books as they are made. During this month the weather and the early progress of the crops on the different plots are among the things to be especially noted. W. O. ATWATER,

Wesleyan University, Middletown, Conn.

A Ridger for Roots and Other Crops.

A description and sketch of an implement comes from H. Lane, Cornwall, Vt., who, if we mistake not, is the Hon. Henry Lane, to whom we are indebted for a marked improvement in beets, and who has done much to advance root-culture generally. The implement is for throwing land up into low ridges, upon the top of which the seeds of beets, mangels, rutabagas, onions, etc., are sown. Mr. L. quickly converts his corn-marker into a ridger. The corn-marker, fig. 1, consists of two cedar poles for shafts, connected by two cross-bars, and furnished with a handle two feet high; the marking portion, which is attached at the rear of the handle, is removed. For the ridger, a piece of 3 x 4 oak scantling, 48 inches long, has three cultivator teeth bolted to it; one at 8 inches from each end, and the other in the center, making the teeth 16 inches apart; this piece is shown at *b*. A 2-inch oak plank the same length as the scantling is cut into three teeth, as shown at *c;* these teeth are so cut that their points will correspond to the cultivator teeth. This plank is bolted to the back side of the scantling in such a manner as its points will be three inches higher than the lower ends of the cultivator teeth. The whole, scantling and plank, is bolted to the shafts of the marker, just forward of the handle, at the place marked *e*. The point where the scantling sits upon the shafts should be so bevelled that, when those are hitched to a horse, the cultivator teeth will stand upright. Mr. Lane says that with this implement upon land free of stones and coarse manure, he can make very neat and uniform ridges, two at a time, with great ease. The first ridge, to be straight, should be run carefully, using a line; by allowing one

RIDGER FOR ROOT CROPS.

tooth to follow where the outside one went before, all the rest will be straight. Mr. L. formerly sowed his onions 14 inches apart, but he prefers 16 inches. In setting out onions for seed, he plants on every other ridge. For beets, he formerly used every other ridge, but finding 32 inches to be needlessly far apart, he has made another ridger exactly like this, except that the teeth and points are 24 inches apart. He finds the ridger most useful, and gives the benefit of his experience to others.

Rhode Island Turkeys.—A correspondent asks, if Rhode Island Turkeys are a distinct breed. The State of Rhode Island has given its name to a first-class article of poultry raised within the State and in Eastern Connecticut, just as Orange County has given its name to the best quality of butter. This little State, and the adjacent counties in Connecticut, give turkey raising a prominent place in their farming. The soil and climate are admirably adapted to the business, and the turkey crop is about as sure in its results as the raising of pigs, or calves. Turkeys, especially the Bronze and the Narragansett breeds, have been bred for size for a great many years, and flocks, averaging from 12 to 14 lbs. each, when dressed for market, are not uncommon at Thanksgiving and Christmas. They are sent principally to the Boston and Providence markets; they are perfectly fattened, and the crops and entrails are always drawn, which may be one secret of their excellence. To have roast turkey in its perfection, it should be cooked and served at Thanksgiving along the shores of Narragansett Bay.

Equalizer for Three Horses Abreast.

The economy of using three horses abreast in field work is apparent. In plowing heavy soils, or in the use of gang-plows, three horses and one man will do the work of four horses and two men. At the present time, when we must diminish the cost of production by every possible method, this is a saving of no little importance. The difficulty in using three horses has been, the want of a method of so applying the force as to avoid side draft, and the trampling of one horse upon the plowed ground. We have recently tried a three-horse evener, known as "Frederick's Equalizer," and

Fig. 1.—EQUALIZER FOR TWO HORSES.

find it to answer its purpose in avoiding the above difficulties. To prevent a multiplicity of tools, this evener is adapted for use with either two or three horses, by making slight changes in the arrangement, as shown in the engravings. At fig. 1 it is ready for use with two horses, and at fig. 2 it is shown as when intended for three horses. When

Fig. 2.—EQUALIZER FOR THREE HORSES.

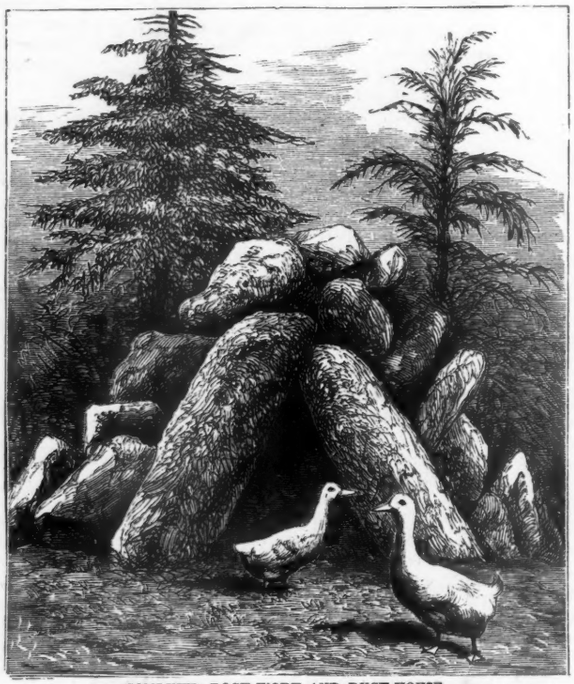
this is used in plowing, the traces are crossed, as shown at fig. 2, by which the horses are brought as close together as is convenient; otherwise the traces are kept straight. The evener may be used in wagons, harrows, plows, or harvesters, a stay chain being provided for use with a tongue.

Sheep.—We hear very favorable reports from sheep owners and breeders, and the markets show that mutton is in demand, at good prices. Sheep raising in the West is rapidly becoming a staple business, free from the somewhat speculative character which at first belonged to it. This is doubtless in consequence of the practical experience gained by those who have retained their flocks, and who have turned early reverses to profitable successes, through perseverance. The Merino breeders are disposing of large numbers of rams for breeding purposes, and these can now be procured at reasonable prices by those who would improve their flock.

Sweet Corn for Fodder.—A trial of several varieties of sweet corn for fodder for milk cows, the past season, has resulted very successfully. Many good farmers have for years past considered sweet corn fodder to be worth more than that from field corn. The large quantity of sugar contained in sweet corn makes it a highly nutritious food, sugar being as much a nutriment as starch—indeed, it is strongly believed by some physiologists that the starch of food is changed in great part to sugar during digestion and before assimilation. But it will be found in practice that the most valuable fodder is that which is grown so widely apart that the juices of the stalks are matured and the ears are considerably developed before the crop is cut. Small early varieties, planted in May and afterwards, may be gathered in July and August; and the medium late varieties, such as the Triumph, will come in in August and September; while the late Evergreen will last until frost stops the growth.

Mr. Kemp's Poultry House.

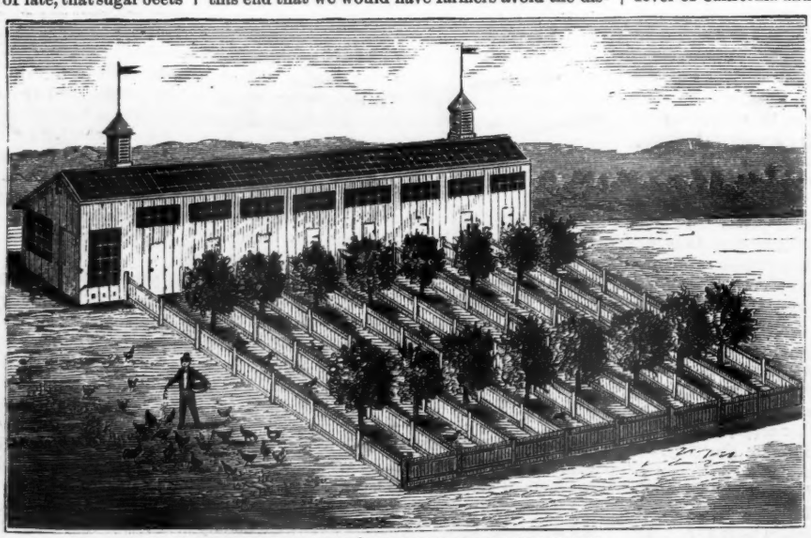
The accompanying engraving represents the poultry house of Mr. Kemp, of Germantown, Ohio, which the owner thinks to be cheap and convenient. It is built upon a raised bank, and has a trench around it which keeps the interior always dry. The house is 72 feet long, and 12 feet wide, and is divided into nine apartments, each 8 x 12 feet. Eight varieties of fowls are kept in it; the ninth apartment being reserved for packing eggs and other purposes. The runs are 8 x 70 feet, and each run has two plum trees in it, which furnish both shade and fruit: the plums, it is said, are not injured by insects. There is no room lost by alleys or passages inside of the house; entrance is gained by doors which open into each pen and run. To preserve cleanliness, every part of the building is made accessible, and ventilation is secured by two cupolas. The rear part of the house is 5 feet high, and the front, which faces the south, is 8 feet in hight. There is a stout roof of glass on the south side, and a window in each apartment. Mr. Kemp writes that his fowls are kept in perfect health, and he attributes this, in great part, to the dryness and airiness of his house. It is well to refer here to the numerous cases of disease and death among poultry, which have occurred the present season, and which are always appearing from want of attention to the requisites of cleanliness, dryness, and ventilation. Fowls kept in damp, unclean quarters, have died in large numbers, and they will continue to die, whenever exposed to these unhealthful influences. It is in vain to use remedies while the cause of the trouble exists, and it is surprising that poultry-keepers should not learn from repeated and costly experience, that fowls are as much subject to diseases from damp, filth, and close, heated quarters, as any other animals. "Chicken Cholera" is caused by the poisons thus engendered, and is not to be cured by the astringent medicines commended.



COMBINED ROCK-WORK AND DUCK-HOUSE.

Sugar Beets, and Beet Sugar.

Serious misstatements have been made in regard to the yield of sugar beets, and their profitable use for sugar making. It is a pity that some will get enthusiastic over a new idea, and lead others astray. Thus it has been frequently stated of late, that sugar beets are an enormously productive and profitable crop; that at the rate paid for them at the Maine beet-sugar factory, viz., $5 per ton, this crop will bring $250 per acre, the yield being 50 tons per acre. This would be an extraordinary yield for the grosser, and more prolific mangels, and an utterly improbable one for the less vigorous, and more refined sugar beet. A yield of 18 to 20 tons, is considered a fair crop in France and Germany, where they have been learning the best methods for years, and if we can succeed here as well as do the French and Germans, we shall be more fortunate than we have hitherto been. The truth is, the sugar beet crop is very remunerative at $4 per ton. Twenty-five tons per acre will amount to $100, which is equal to 200 bushels of corn per acre at present prices, and the refuse pulp, or beet-cake and the leaves, are worth more as food, than the fodder from the corn: 25 tons is equal to more than 800 bushels per acre. Fifty tons per acre, which is the misleading estimate given by some too sanguine writers, is equal to 1,600 bushels per acre, or 10 bushels from a square rod: or 40 two horse wagon loads, of 40 bushels each to the acre. Those who have grown roots, well know how rarely such crops as this, even with the mammoth red mangels, which reach a weight of 25 lbs. or more per root; while a sugar beet of more than one fourth that weight, is not desirable for sugar making, because it is deficient in saccharine matter; the smaller roots being the sweetest. The cost of a crop of 25 tons of sugar beets, need not be more than that of 80 bushels of corn per acre, so that a handsome profit of $60 per acre results from the former; counting the beets only, at $4 per ton, and the corn at 50 cents a bushel. We by no means state these facts to discourage the growing of sugar beets or the manufacture of sugar. We are well persuaded that we shall ultimately make our own sugar from beets, and it is to hasten this end that we would have farmers avoid the discouragement that must follow false expectations. When we succeed in profitably making sugar from beets, we shall then keep at home $90,000,000 which annually goes abroad to pay for foreign sugar. This is surely an end worth striving for, and every farmer should feel a lively interest in its accomplishment.



VIEW OF MR. KEMP'S POULTRY HOUSE AND YARDS.

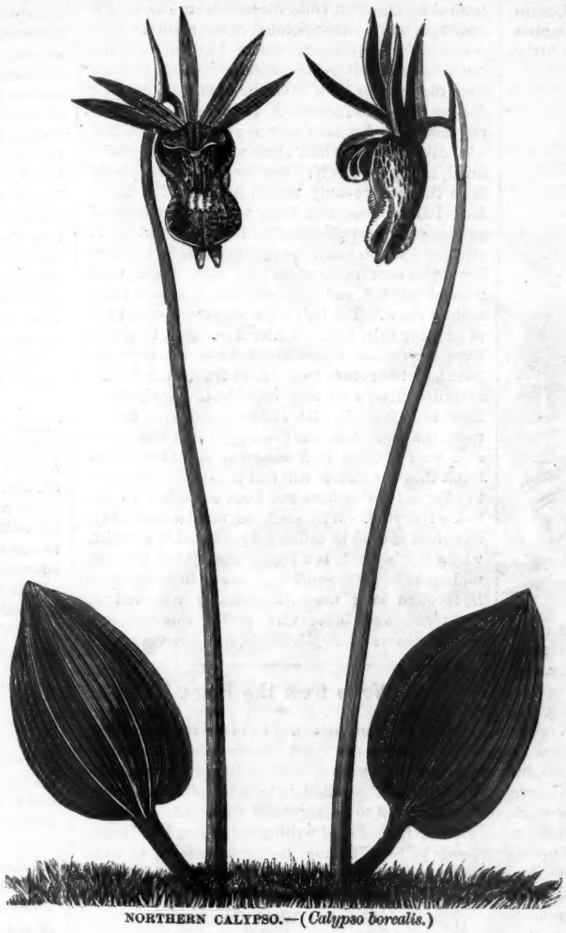
A Rock-work Duck-House.

Duck-houses are often built of brick; they may as well be of stone, if that material is at hand, and in suitable localities, the house may be made ornamental by fitting it to grow alpine plants and ferns—in fact, a combined rockery and duckery. Such a house may be an intrusion from being out of place, or it may, in an appropriate spot, add greatly to the embellishment of the grounds. The general ideas on such matters given last month on p. 187, apply in this case. Near a pond, such a duck-house may find an appropriate place, or if the disposition of the grounds is such that it would be proper not far from the lawn, such a location would be desirable, as then the birds could add an attractive feature to the lawn. Ducks are the only poultry, that may with safety be allowed the run of the grounds; they do not destroy by scratching, like other poultry, though they are not admissible to borders and flower plots where there are small plants, on account of the injury they may do by trampling. Where the surroundings will allow, the large pure white Pekin ducks, or the varied and rich colors of the Rouens, make them not only tolerated, but desirable, partly on account of their beauty, and also as destroyers of insects. The engraving represents a house of this kind recently built. An interior room or cave is first built of brick, or small stones, laid in cement, outside of which the rocks are disposed in a natural manner. In the rear there should be an opening to allow of access to the cave, and this may be closed by a door of cedar strips. In arranging the rocks with a view to the growing of plants, crevices of different sizes must be left, and these are to be filled with vegetable mould from the woods, or peaty earth, mixed with sufficient sand to keep it always loose. As stated last month, success in growing plants in such crevices depends on having the earth they contain in connection with the soil below. Indeed, for all that relates to the duck-house as a rock-garden, reference may be made to that article. To prevent the ducks from leaving their eggs here and there, after their usual manner, they may be confined by a movable pen of wire netting until they have laid.

Angora Goats.—For some reason, the goat fever of California and elsewhere has suffered a relapse. Where flocks of thousands were started, there are now heard complaints that the wool fails to pay more than the expense of feeding, making the flock, the larger it grows, a greater incubus upon the owner's pocket. Prominent goat owners have looked for their profit not to the wool, but to the sale of animals for breeding, and as the demand in this way has ceased from what are now called "ignorant and deceived customers," and is very small indeed from others, the profits amount to nothing. This may be unfortunate, because there would seem to be a place in our industries for the rearing and keeping of goats, as well as a demand for their wool, under proper management. So far, however, legitimate goat keeping for wool has hardly existed, and it is to the exaggerated statements made by persons interested in selling bucks at high prices, that the unfortunate condition of a promising industry may be charged. All new industries are acclimated through difficulties.

The Northern Calypso.

At one of the monthly meetings of the N. Y. Horticultural Society—which, by the way, are rapidly growing in interest and importance—one of the most attractive objects in a really fine exhibition, was a large pan filled with the Northern Calypso (*Calypso borealis*). This was one of the exhibits of Woolson & Co., of Passaic, N. J., who, having received the roots from Oregon some time previously, planted them in a large pan of sphagnum, where, in a cool greenhouse, they came forward without any of the drawn-up appearance too often seen in forced plants. Calypso—it has received no other name—and needs none—is an Orchid, and like the other northern members of the Orchid Family it is terrestrial, while the majority of those in warm countries, growing upon the branches and trunks of trees are epiphytes. It is a rare plant in the peat bogs of Northern New England, is found in Nova Scotia and other parts of the Dominion, and is more frequent north-westward, it being quite common in the dark, damp fir woods of Washington Territory and Oregon. In the old world it is found in Siberia and other high northern countries. Calypso has a small solid bulb, from which arises a single leaf; this is evergreen, ovate or heart-shaped and strongly veined. In spring it throws up a stem three to six inches or more high, bearing at the top a solitary flower, which is shown of the natural size in the engraving. The flowers of the orchids, generally, are of such irregular and peculiar forms that their structure seems quite unlike that of most other flowers. The flowers have six divisions, three outer, answering to the calyx, and three inner forming the corolla. The unusual appearance is generally due to one of these inner parts or petals, the lower one, being usually much larger than the others, and of a different shape. This petal is technically termed "the lip." This in Ladies Slippers (*Cypripedium*), is so large and inflated that it forms the most conspicuous part of the flower. Other parts of the flower are sometimes irregular, but it is in the lip that we find the greatest departure from the usual form. In Calypso we find the three parts of the outer series, or calyx, and two of the petals, much alike, all narrow; sharp-pointed, and standing erect; below is the lip—much the largest part of the flower, which is irregularly formed, inflated, turned over at the edges, and terminating at the lower end in two points. The general color of the flower is pink, or pale rose-color, which is variegated in the lip with deep purple lines and a broad yellow blotch; the lip also bears tufts of yellow hairs. The hooded portion just above the lip belongs to the stamens and pistil, the structure of which can not be readily described in a popular article. But neither engraving nor description can give a proper idea of the delicate beauty of this little plant; and we are not disposed to disagree with the writer who calls it "the most beautiful of all Northern Orchids." Like other natives of the peat-moss bogs, it can only be successfully grown by giving it a locality something like that in which it is found. For the showy Ladies Slipper and other plants of the bogs, we have a spot in a clump of evergreens in which an excavation was filled with a mixture of peat and sandy soil, and over this is put a good covering of sphagnum or peat-moss. The Calypso would flourish here, but its beauty is of a kind that requires close examination, and we prefer to cultivate such small subjects in pots or pans of peat and moss, and keep them in a cold frame. The name, Calypso, is that of a heathen goddess, of whom the less that is said the better.



NORTHERN CALYPSO.—(*Calypso borealis.*)

EUROPEAN DOG'S-TOOTH VIOLET.—(*See next page.*)

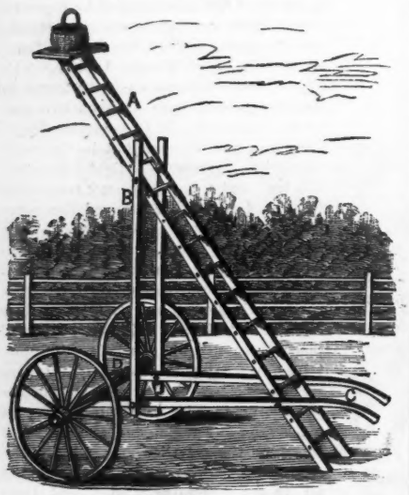
The Winter Aconite.

To learn all about a plant and its cultivation abroad, through accounts in books and journals; to be perfectly familiar with its appearance from colored and plain engravings, and yet not be able to know the plant itself through the acquaintance which cultivation brings, is a most annoying position for a real lover of plants. Such have heretofore been our own relations to the Winter Aconite, the appearance of which was noted every spring by the European journals, with words of praise that made us each year all the more desirous to have and know the plant. With this feeling, it may be assumed that our ignorance was not due to a want of effort to cultivate it. Each autumn the roots are offered, in small quantity, by our bulb dealers, and each autumn, for years, we have procured the roots, now from one dealer, and now from another, and planted them in the border, on the rock-work, in the wild garden, and even in pots, and each succeeding spring have watched, but in vain, for the "well-known and admired Winter Aconite * * one of the earliest and hardiest of spring flowers." It being a native of Central Europe, it may have been supposed that our winters were too severe for it, had not the failure been the same in pots wintered in the cellar or in the pit. Not discouraged by repeated failure, roots were again set out last fall, and this spring we had, for the first time, an abundance of Winter Aconite. The key to former failures was to be found in learning the difference between this and former plantings. In the planting itself, there was no difference, but in the roots themselves, there was—a slight difference, it is true, but enough to cause success or failure. Last fall we received the roots in the very heavy paper bag in which they had been imported, and in the buckwheat chaff in which they were packed.

Heretofore we had taken the roots from the dealer's show counters, it being their habit to unpack their bulbs and roots, and place them in pans, baskets, etc., upon tables, where their customers may see them, and where they may be at hand for filling orders. This exposure may be for a few days or a few weeks, and a part of this time the weather may require the store to be heated; while this does not at all injure hyacinths, tulips, and most others, it is sufficient to destroy the vitality in Winter Aconite, and in some other roots and bulbs, and accounts for other failures. Having been particular in describing this matter, for the benefit of those who sell and those who buy bulbs and roots, we add, as to the plant itself, that the engraving gives its size and the general appearance of the flowers from a single root, though it does not give the effect of a mass, the condition in which it shows best. Later, the stems grow to about twice the hight here shown. The flowers are described as "yellow," but it is a pale and most delicate shade of the color, and quite unlike the positive yellows of the Spring Adonis, the Daffodil, and other early flowers of this color. Now that we know how to get it, we have no doubt that the Winter Aconite will take its place in our gardens, to bloom with the Blood-root, Jeffersonia, Snow-drops, and other very early comers, over most of which it has the advantage of giving a much longer season of bloom. It is a capital plant for the wild garden, and will probably become with us, as in England, perfectly naturalized, and need no care beyond division when it gets too thick. The name *Eranthis* is from the Greek words for *spring* and *flower*, though in Europe it better sustains its English name—Winter Aconite, as it

WINTER ACONITE.—(*Eranthis hyemalis.*)

flowers there in January and February. It is a member of the great Ranunculus Family, as may be inferred from the resemblance of its flowers to those of the Anemones. It is not very near the Aconites, but more closely related to the Hellebores (Christmas Rose, etc.), indeed the earlier botanists placed it in *Helleborus*, from which it differs but little.



A Ladder for the Orchard.

In the course of years we have published many styles of fruit or orchard ladders; some of these were for the conversion of an ordinary ladder, into one suited for orchard work, and others have been special contrivances, useful for fruit picking, and for scarcely anything else. We now give one for which a very neat sketch and the measurements were sent by "A. C.," who, while he gave his full name, omitted to write his address, and we only know from the more than usually blind post-mark, that he is somewhere in Illinois. The engraving plainly shows the affair—a ladder mounted upon a two-wheeled wheelbarrow. The brief directions point out the following points to be observed in building it. The axle for the wheels, in order to give as broad a base as possible, and avoid the danger of its tipping sidewise, should be as long as will allow it to pass through the gates upon the farm. To avoid tipping forward, it should be so built that a plumb-line dropped from the top of the ladder will strike the axle. The shafts (*C*) should hinge under the axle, near to the wheels; where they are bolted to the ladder the holes should be large to give some play, and they should extend far enough back to afford convenient handles. The standards, *B*, are bolted to the shafts, *C*, at a point one-third the distance from the axle to the foot of the ladder, and are attached to the ladder at a point three-fourths of its length from the base. Our correspondent writes that if one has a pair of wheels, such a ladder will cost from $2 to $3, more than a common one, and gives it as his experience that "it beats the world in an orchard or a stack yard."

The European Dog's-Tooth Violet.

(*See Engraving, Page 227.*)

Probably no wild flower is better known than our native Dog's-tooth Violet, or Adder's-tongue, *Erythronium Americanum*. This, though beautiful in itself, suffers by comparison with *E. Dens-canis*, a native of Continental Europe, and found even as far north as Siberia. As compared with our species, the leaves in this are shorter, more strongly blotched with reddish-brown spots, while the flower is more open and of beautiful shades of rose-purple, which are darker without than within. The engraving shows the form, but of course fails to give the color of this beautiful early spring flower—and is also less than the natural size, the flower stems being usually six inches high. There are varieties with white, rose, and flesh-colored flowers, but none of them, to our notion, equal the ordinary form in beauty. This is one of those little gems which one can not properly describe without seeming extravagant over it. We content ourselves by saying that it is simply beautiful, and that no one who has formed an idea of it from the most enthusiastic description, will be disappointed in the reality. This is one of the common flowers of Europe that, like the Winter Aconite,—described elsewhere, we have tried for years to grow from the bulbs imported by dealers without success. A few years ago a correspondent in England sent us some bulbs, packed with other plants, which came without having been dried, and grew freely. Our two or three plants from this source only caused a desire for more. Last fall we procured from a dealer, an original package of the bulbs, just as they were put up in sand, and which had not been exposed to the drying influences of our autumn air; these were planted last fall, and this spring made a most satisfactory show. The only hope our plant-lovers have of growing this, or the Winter Aconite is, to obtain from the dealers bulbs which have not been exposed, or to procure fresh bulbs from such florists as grow them, and may be able to supply them fresh from the soil. Its earliness and real beauty make it a most desirable plant—not the less desirable here because it is common abroad—and we think that our florists will find it to their advantage to offer bulbs that have not been subjected to the risk of drying. Why such an unmistakable lily-like plant should be called a Violet, and if a Violet, why a Dog's-tooth, is a puzzle that we will not now undertake to solve—suffice it to say that the name is, through long usage, thoroughly attached to the plant, and those who prefer this uncouth English name to *Erythronium*, are welcome to it.

Notes from the Pines.

When I began this series I did not intend to write every month; the good friends who, whenever a gap occurred, were so kind as to write and inquire the cause of the omission, have by this time learned that I intend to be regularly irregular. I started with the intention of writing only when I had something to say. It must be most irksome to write every month, whether one has grist to the mill or not. This time I have something to say—and it is

About a Wild Garden.

I wish I were sure that this could catch the eye and have the attention of the many who really love flowers, but, for one reason or another, have no garden. With many who live in the country, a flower garden is something to come in that future when there shall be "time." Many a country dweller who intends to have a garden, looks upon it as an undertaking that requires an outlay of time, labor, and money. It is to be in the good time coming, and in the meantime he gratifies his love for flowers by occasional rambles to see what the woods, the meadows, and the coppices afford him. Now suppose that instead of tramping for some miles for a few wild flowers, these could all be found—not only these, but a great many more—all within the area of a few yards! Would he not rejoice at it. This is just

The Idea of a Wild Garden.

A nook somewhere—not already too much crowded with natural growth, where the roots of trees and shrubs will take all that the soil has to give—but a good bit of unoccupied soil. Here put all the native flowers that are desirable, with a whole host of the hardy plants from other countries. There are few farms that do not afford such a spot—no matter if it be at a distance from the house; this garden has not to be watered, watched, and tended. But there may be those who, like myself, prefer to make a wild garden. Our wooded hill-side is too far off, though that is more or less planted, and even the pasture has a corner penned off for moisture-loving plants. There is not much wild about my wild garden save the plants. The hen-house and the boundary fence make a corner. The fence is hidden by a row of closely planted evergreens. The side of the hen-house is made "wild" by a drapery of Virginia Creeper and American Wistaria, and in this corner, well away from fence and hen-house is

A Rock-work.

This rockery, of the stones at hand, was made with but one thing in view—growing plants. It would defy any geologist to account for its upheaval, especially as it is mainly of new red-sandstone, the worst of all rocks for the purpose, but all that we had. Of natural rock-scenery there is little, but of cracks and crevices there are many. The ground around the rockery, for some distance, forms a part of the wild garden. Last fall, a goodly collection of plants came from European correspondents, but I was away when they were planted, so this spring I had not only the pleasure of seeing the plants, but of making new discoveries. I have read of an eccentric literary man—whose name I have forgotten, who was very fond of confectionary; one of his oddities was, to hide sugar-plums and the like, in all sorts of odd places, that he might enjoy the pleasure of finding them unexpectedly. My first visit this spring to the wild garden reminded me of him, in discovering new plants in unexpected places, and could understand his satisfaction over his discoveries of hidden sweets. While there are

Enough Wild Flowers

in almost every locality to make the wild garden attractive, and one is worth having for these only, there are a great many from other countries that are able to make themselves quite at home, and become naturalized just as easily as do the human inhabitants of those countries when transplanted to our soil. Of course the wild garden will have a succession from early spring until the frost puts an end to all bloom, and this mentioning of those that greeted my first visit, is intended only to show some of the early blooming plants that may be introduced. At the foot of the rock-work was

A Sheet of Brilliant White.

Can anything be more beautiful than this?—Yet it was only our common Blood-root (*Sanguinaria Canadensis*) that may be had almost anywhere for the digging. Near by, that best of early spring bulbs, *Bulbocodium vernum*, earlier than Crocus, and in a mass more showy, had nearly gone out of flower....Another charming early native is

The Rue Anemone,

Thalictrum anemonoides, delicate in foliage, and habit, and bearing an abundance of its tiny white flowers which have not the brilliant opaque white of those of the Blood-root, but quite as pleasing in their way. This is one of the few flowers that show a tendency to become double in their wild state. I have a number of times found this partly double, and several years ago a friend in England sent me a full-double, and a charming thing it is.—But speaking of doubles, I know of none of our wild plants that makes such beautiful double flowers as

The Hepatica or Liver-Leaf.

Hepatica triloba is the botanical name by which it is generally known, but European botanists place it in the already too large genus Anemone, and call it *Anemone Hepatica*. It is common in the woods, at least in all the Eastern States, flowering as soon as the snow is off. It is also a native of Europe, and the Europeans have secured a number of double forms in a variety of colors. I have found it, wild, from nearly a pure white to the deepest blue, but never saw any tendency to double. The doubles must be imported; they do not appear to be easy to manage, but are worth any amount of trouble. There are double white, pink, red, blue, and purple, with intermediate shades, and each one a gem in itself. I am glad to notice that some of our dealers in hardy plants are giving attention to these double Hepaticas. I find that we have quite a collection of native and foreign species of

Erythronium or Dog's-tooth Violet;

these are not violets, or at all like them, but are little lily-like flowers. Another name has been proposed for our native species—Adder's Tongue—probably on account of its broad spotted leaves, which are not at all like the tongue of an adder or any other snake. Our common *Erythronium Americanum* is welcome, but when it comes to the question of beauty the European *E. Dens-Canis*, is far ahead of it. In beautiful contrast to this is the White Dog's-Tooth Violet, rare at the East, but

common in the far West, and well worth having. Those who like oddities in the way of plants will admire the

Asarums or Wild Gingers.

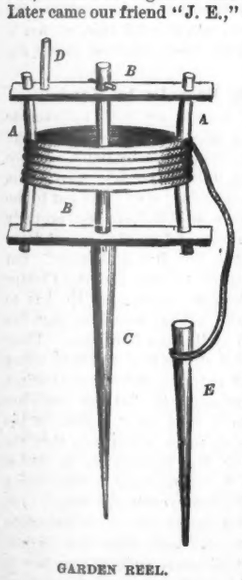
One species, known as Canada Snake Root, is common in all the Northern woods. These, with two Southern species, another from Oregon, and one from Europe, make up a group which, while not showy, will interest the botanist. When we come to showy plants in the wild garden we find *Aubrietia deltoidea* spreading a sheet of delicate purple upon the rock-work. In a corner there is the *Winter Aconite*, one of the earliest of all, and a little later, *Adonis Vernalis*, with flowers of a brighter yellow, and foliage so dark-green and beautifully cut that it would be worth growing for that alone. Close after Adonis comes the slender-leaved Pæony, *Pæonia tenuifolia*, double and single, so beautiful with their rich crimson flowers, fine foliage, and withal so rare. The Grape Hyacinth, *Muscari botryoides*, naturalizes well in the wild garden, and both the dark-blue and the white kinds seem to be quite at home. Among other native plants worthy of special notice are Dutchman's Breeches (*Dicentra Cucullaria*), three-leaved Geum (*Geum triflorum*) from the far West, and more showy in fruit than in flower; the American Pasque Flower (*Anemone patens* var. *Nuttalliana*), its enormous flower making it noticeable.—But it would make too long a list to name everything, my object being to commend

The Wild Garden

to every lover of wild plants. Our natives can grow there, and a large number of foreigners may be naturalized and made wild. It can be a source of great pleasure to those who can have no other garden, while to those who have the most formal borders, it will be a pleasing change to have a nook or corner where their favorites can be at home. Much credit is due to Mr. W. Robinson, editor of "The Garden" (Eng.), for his advocacy of the Wild Garden. He has done much to check the mania for "bedding out,"—well enough in its place, but not the only style of gardening worthy of consideration.

Garden Reels, Once More.

In the Notes about Garden Work for April, the general lack of stability in the Garden Reels now sold, was mentioned. This brought out, as we intended it should, several correspondents, one of whom, R. Foster, of Ohio, gave a drawing of his reel, which was engraved last month on page 176. Later came our friend "J. E.," of Egg Harbor City, N. J., with an account of a most excellent reel, perhaps easier to make than Mr. Foster's, and will carry a longer line than that. This reel was made by "J. E." over 15 years ago, and he has had it in use ever since. He learned how to make it *from an engraving given in the American Agriculturist!* Turning back to the volume and page — 1864, page 113, there, sure enough, was our old reel! The writer had a gap of three or four years in his gardening operations; in commencing anew, such iron reels as could be bought were used, and used up, while the excellent home-made one of the former gardening period was quite forgotten. It was with an indistinct idea that he had known of something better that the "Notes" in April were written, but the fact that we had already published something better had quite escaped him. Thanking J. E. for reminding us of it, we here reproduce the engraving of 1864; another generation of gardeners having sprung up since, it will be new to the great majority. The cut needs but little explanation; the reel should be made of hard-wood; the center pin or stake, *C*, is 2 to 2½ feet long, an inch in diameter where it passes through the cross-pieces; there is a shoulder upon which the lower piece rests, and from there the stake is worked down to a point. The cross-pieces, *B*, *B*, are 1 foot long, 2 inches wide, and ¼ or ⅓ inch thick; the curved side-pieces, *A*, *A*, are made from branches, with a slight natural curve, or worked out of straight stuff; these



GARDEN REEL.

are 12 to 15 inches long, and pinned to the cross-pieces, where they pass through them. A pin through the upper end of the center stake holds all together, and a handle, *D*, with another stake, *E*, completes the affair. The side-pieces should project below the cross-pieces rather farther than in the engraving, to make corners around which to hitch the line when enough has run out. J. E. says that to make this reel last, house it every night.

Cactuses in Summer.—We are glad to receive questions concerning the proper treatment of plants of the Cactus Family, as it shows that the interest in these old favorites in window gardening is returning. The majority of the most showy and largest flowered species and varieties bloom in summer, they make their growth at that time, and need watering the same as other growing plants. In autumn, when their new growth is made and mature, dry off gradually, and keep them dry, or nearly so, for three or four months, and of course away from frost. The Epiphyllums or Crab's-Claw Cactuses bloom in fall or early winter; with these, the time of dryness is reversed; they are kept dry during summer, are given water in early fall, and are kept supplied until the new shoots are full grown and ripe, when it is to be withheld and the soil dried.

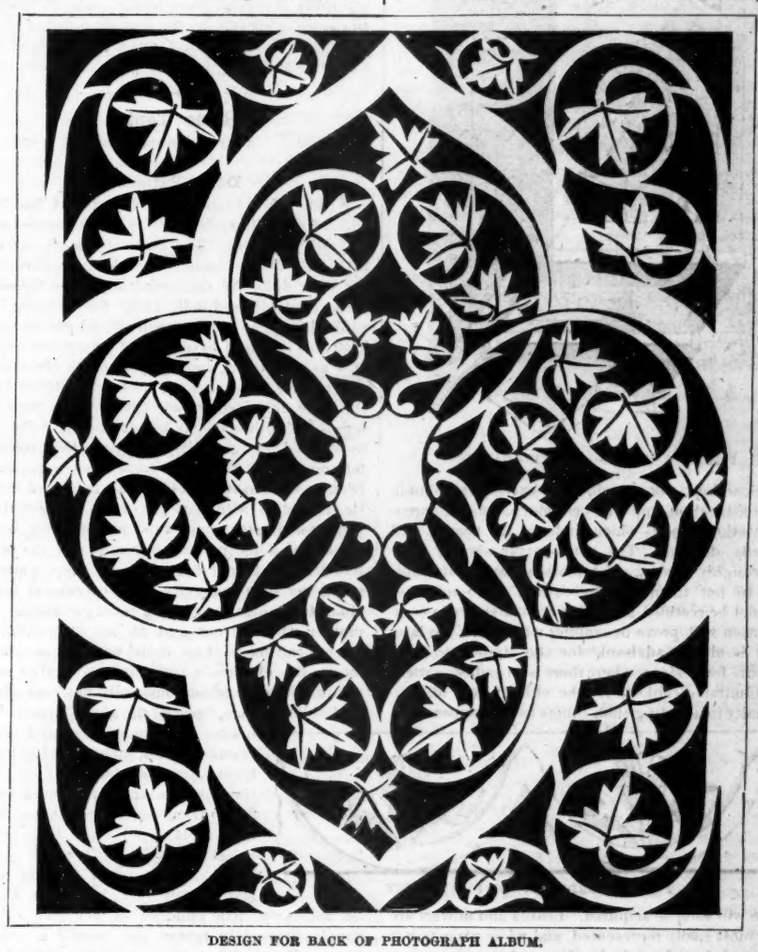
THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

Decorative Art.*

BY M. G. E.

Though fret-sawing cannot be compared with wood-carving, in an artistic point of view, the two may be very advantageously combined to produce some exceedingly pretty effects, by using fine chisels and the veining tool after carefully sawing out the pattern. The design (fig. 1), for the cover of a photograph album is made of white wood, and


DESIGN FOR BACK OF PHOTOGRAPH ALBUM.

when finished should be lined with crimson velvet. The shield in the center may have an additional layer glued on to add to the richness of effect, though it is desirable to use glue as little as possible in making up your work. A glue-pot is, however, often needed while carving. Even under experienced hands a chisel will slip and the fruit of much patient labor be carried away in an instant, but with glue the piece is restored to its proper place, and when dry a few touches of knife or chisel makes all right again. Designs for both sides of an album cover may be cut at once, as the wood used will be only about ¼ inch in thickness, and the two pieces can be pasted together with thin paper between, so that they can be easily separated afterwards. The stems should be delicately and carefully rounded, and the veinings of the leaves marked with the dividing tool. This, if neatly executed, will be found very pretty, quite artistic in its way, and can be made up at small expense. Fret-sawing is more tedious than difficult, owing to the necessity of constantly loosening one end of the saw, in order to slip it in a new hole made by a small gimlet, where the pattern becomes disconnected. Hand-saws of various sizes are sold for this work at a trifling cost, but for those who are

*Continued from page 146, April *American Agriculturist*.

willing to go to the expense, the "Standard Scroll Saws" are the best; they range in price from $10 to $35. If a hand-saw is used the work should be held, edge upwards, to the table by means of a vise.

Fig. 2 is a design for a Hanging Cabinet which will be useful, as well as ornamental. It may be

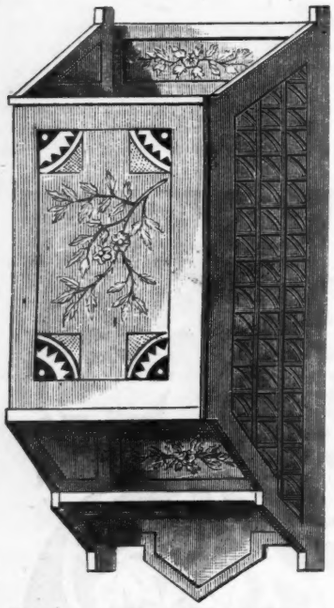


Fig. 2.—A HANGING CARVED CABINET.

black-walnut, oak, or ash. It is exceedingly simple in construction, and will bear much elaborate ornamentation, upon which, indeed, its beauty will mainly depend. The wood-carver should have thoroughly understood intentions before attempting to put them into execution, since mistakes cannot be rectified and regrets over errors in composition will prove unavailing when seen too late.

It is always advisable for the student to go to Nature for designs, where there is an endless variety of admirable subjects for the chisel; skill and ingenuity in adapting such things as may appear suitable will soon be acquired. Leaves and flowers are the most easily represented, and while we may not in wood reproduce the loveliness of tint or delicacy of texture, we may very faithfully give the grace of outline, the tender curves of the flower, and the bolder sweep of leaf. Birds are especially showy and ornamental, requiring but little of the finer work; animals of all kinds, and even the human figure, may be adapted to the purpose of our ornamentation. It is best to start out with a well formed idea in view, and carry it faithfully throughout the whole work, otherwise the effect may be fragmentary and not wholly satisfactory. I have seen a masterly piece of work designed and executed by an amateur, in which the story of Passion was delicately and beautifully carried out, the carvings were of the passion-vine; painted tiles still further suggested the same idea, and the whole work served as a frame to the picture of Francisca da Rimini. The absolute consistency of the whole was its chief beauty. Scroll-hinges, nickel-plated, add greatly to effect where hinges are required, and may be procured of any size. The design for ornamenting the door, or other parts of the cabinet, may be furnished according to the worker's own taste, in bold relief or the more easily executed incised work; in the former case, the wood of the panel should be thick, according to the depth of the cutting, as the gluing on of extra thickness is not to be recommended. The spray of apple blossoms on the door of the cabinet is merely a suggestion, but might be carefully handled in low relief, especially if copied from nature, so as to produce an exquisite effect. In fig. 3 is given a design for a border, arranged from Lotus-flower. Figure 4 is a figure which may be used for a side ornament.

Fig. 3.—BORDER OF EGYPTIAN LOTUS.

Fig. 4.—SIDE ORNAMENT.

Home Topics.

BY FAITH ROCHESTER.

Dolls' Patterns.

Within a few years a new department has been added to the illustrated pattern catalogues—a page of Dolls' Patterns. The pattern dealers say that little girls find a pleasure in making up wardrobes for their dolls, far surpassing any to be found in those ready-dressed dolls whose fine clothing is so made that it can not be taken off and put on again, That this is true, I have learned by my own experience as a little girl, and lately by much observation as a mother. Patterns are useful. Without them the little dress-makers are apt to waste their materials in fruitless efforts to cut and fit dolls' garments, and they grow discouraged by their frequent failures, unless mamma or some other experienced friend comes to their aid. I had furnished my little daughters with patterns of dolls' gabrielle or princesse dresses, underwaist and drawers, before I heard of dolls' patterns for sale, and the eldest had learned to cut her cloth by these patterns, using her own ingenuity, with occasional advice about trimmings and making other garments. Any mother who can cut and fit her own children's clothes can make these dolls' patterns, which are merely like children's patterns on a smaller scale.

Yet I protest against some dolls' patterns offered by fashion dealers, because the absurdities of fashion are reproduced here and taught to our children, such as the full length illustrations of dressed dolls with trains or demi-trains and much superfluous trimming and puffing and looping. It is a pity for a little girl to be set to playing with mimic young ladies. It is better for her mind and morals that her dolls should be babies or little children of her own sphere, simply dressed in fabrics she herself is able to wear. Dolls with costumes of the richest materials, teach extravagance, do not seem to be so much beloved as are the plain rag babies, even. I was much interested last fall, in the anxiety of my nine-year-old to get her little dollies all fitted out with under-flannels as the weather grew cold—to see the incipient woman learning to pay most attention to essentials, to the warmth and health of her children. One of the popular fashion catalogues gives patterns of the combination chemise and drawers (or chemiloon) 7 sizes, and there are some other sensible patterns. There are patterns for baby dolls, but none especially for little girl-dolls, though the sack and basque patterns may be used for all ages, and the dress patterns may be shortened in length. Mothers have this matter much in their own hands—whether to train up their daughters to dress their children according to the rules of health and simplicity and economy, with reference always to good taste and genuinely artistic effects; or to let them grow up with no idea of feminine dress except as a means for displaying the greatest possible variety of fabrics and designs in ornamentation, a costume in which *trimming* is the main idea, and which is extravagant in its very foundation principles. I try to hope that the next generation of women will have been so well taught in the principles of health and economy and true beauty, that the past and present absurdities of feminine costume will not be tolerated. The dolls' patterns advertised have rather discouraged that hope.

The Kitchen Wood-Box.

Once upon a time I delivered a familiar lecture to the people in my own kitchen whom it might concern, the upshot of which was as follows (with some alteration of names): "I want you, Polly, to empty this wood-box to-day and sweep it out clean, sweeping and scrubbing where it has stood, when you clean the floor. I have heard of such wood-boxes before, but I never saw one in such a condition until now, and it must not happen again. Mary told me the other day about Mrs. Brown's kitchen wood-box.—She said, 'O mamma! you ought to see their wood-box. They don't keep wood in it; they keep dirty old rags in it. You hardly ever see any wood there, but it is all dirt and paper and rags for about a foot deep. You can't think how it smells!'—I should think so. I have been in the kitchen so little for two months past that I have not noticed our box, and now I see that there is an accummulation of several inches of rubbish. I supposed it was nearly all bark and splinters, but when I began shovelling it out into the fire, I found old paper and even one or two old rags, and was convinced that dirt had sometimes been thrown in that should have gone out of doors. Now let me tell you all plainly that the wood-box is the place for wood only. Torn papers to be used for kindling must be put somewhere else. Get a strong paper flour sack and hang it handy, and keep the torn papers in that. You may as well burn the coarsest brown paper wrappings at once, as they are not good for kindling fires, and are not needed here for any other purpose. Dirty rags, if not worth washing (for the rag bag if for nothing better), should be burned as soon as possible. All useless matter must be washed or burned without delay. And now remember, children, you must never shake the crumbs from your bibs or napkins over this box, nor toss an apple core or peeling into it. Now, Polly, I want you to empty the box once a week, on your scrubbing day, and then we can always see the bottom and know just what is in it. The pure air of the room and the good health of the family depend upon this among other things."

Thus ended the first lesson, and the second lesson should be to the carpenter, who should be told to make the box with a high back, so that the wall need not be bruised and broken by careless throwing in of wood; also to make the box rather long and high and narrow, as a general rule, so that it may hold considerable wood without occupying much floor space.

Bringing the Baby Up by Hand.

The baby and its mother are both unfortunate when artificial means must be used for feeding the child. This might be avoided many times, by more careful management during the first week of its life. The young babe should always be put to the mother's breast as soon as both have been properly attended to by the nurse. Often this is not done, because the child can not find milk there. But milk is not what it needs at first, and the Creator has given to the human mother, as He has to mothers lower in the animal kingdom, just the nourishment needed by the new-born babe. There is usually so little of it at first that the baby seems to get nothing, but it at least cultivates the instinct of nursing, and its attempts in that line stimulate the secretion of such food as it needs, in the mother's breast. Sometimes it happens that the baby is fed a little at first because its mother is supposed to be too feeble to nurse it, and then a few days later when the "milk has come," and must be disposed of somehow, the babe is thought to be too weak to draw so much away with its little mouth, and when this crisis with the mother is past, behold the babe has forgotten its first natural instinct and can not be made to nurse. All this comes of neglecting to study Nature's teachings. I have had no such experience, but I have seen it in other cases. Sometimes there is good reason why the babe must be "brought up by hand."

Cow's milk is always recommended as the very best substitute for mother's milk, but it is usually considered too rich, and is often diluted one-half with water, and by most nurses is sweetened a little. Many have believed that babes are saved acidity of stomach by leaving out the sugar. Some do not dilute the milk so much, and occasionally it has been found to nourish the child best when given without any previous preparation, except a little warming when the babe is quite young. It should always be the milk of a fresh cow, or one not long past calving, and from the same cow.

An acquaintance lately tried to raise her baby on diluted cream, which she had heard recommended as the best food for infants. Before the babe was a month old, it nearly died of sore mouth, and it seemed to me the result of its cream diet. For I have learned to associate sore mouths and sore throats with *grease*—a rather hard name to give to anything so good as cream. The baby's diet was changed to new milk (by no means skimmed, but not all cream, as before), and this seemed an advantage to its health. It was dosed with some patent medicine also, and I presume *that* is supposed to have relieved its sore mouth. Perhaps that, too, caused the habitual constipation which followed, with other troubles. Then graham gruel was recommended by one who had tried it with good success among her own babes. It was made in the usual way, and was boiled not more than fifteen or twenty minutes, then strained so as to remove the bran, and seasoned with milk and sugar. But this did not set very well on the child's stomach, and oatmeal gruel was prepared for it in the same way, only it was boiled two hours. This agreed with the child well, but did not correct the constipation. So the mother made her graham gruel as she did the oatmeal gruel, cooking it in an earthen jar, set in a kettle of boiling water, and kept boiling gently for two hours, and this she finds the best food the babe has had. It thrives well, and its trouble is removed. It seems to me that if she would leave out the sugar, she might be able to get along without the "soothing syrup" she also uses. (I can't lose this opportunity of testifying again that *I* would never, never give the soothing syrup,) and avoid doctoring the poor child now and then for sore throat or colic.

More Baby-Tenders.

As we expected, the "Baby's Play House," given in April last, has called out several other contrivances, all having the same end in view, but reaching it by different methods—the care of that "well-spring of joy"—the baby. We give now plans by "D. W.," Minerva, Ohio, who thinks the affair described in April, may be useful in some cases, but proposes one that he thinks better suited for general use, especially if the mother must busy herself in the kitchen for most of the time. He writes: When our little boy was very small, a maiden aunt told us of an arrangement used by a relative in the country, which was simply a "store-box," with slats in front, and a good thick quilt in the bottom to keep baby from the cold floor, where, before he could walk, he was placed, and the mother knew he was out of danger and amusing himself. Having a small bedstead with high legs and posts, I sawed off the legs all but about two inches, and put on castors; I also took off some of the tops of the posts. This made a sort of box about 30×43 inches, with smooth sides some 12 inches high. It had a canvas bottom, and I placed over this a ½-inch board floor, and around the box, above the sides and ends, two railings made of ½ by 1-inch stuff. Here we had a movable play-house for baby, with good tight bottom and sides, giving him thorough protection from drafts and dirt. Besides, having castors, the mother could push it to or from the stove as the temperature of the room might require.

The Baby's Hammock.

We had another arrangement, which, when baby was very small, its mamma thought very nice—a hammock. A frame was made of 1×2-inch stuff, about 20×32 inches. In the side pieces there were placed small railings, which kept the little fellow from rolling out, and it had a canvas bottom. This was swung from the ceiling with four strong cords, having iron rings which went over screw-hooks in the ceiling. There were two places in the ceiling

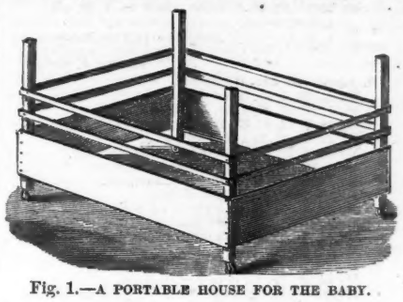


Fig. 1.—A PORTABLE HOUSE FOR THE BABY.

where it could be swung, one nearer the stove than the other, for warm or cold weather. With a soft, comfortable bed made on the hammock, baby would lie for a long time; and instead of having to sit down, in her busiest moment perhaps, when baby might become fussy, and rocking the cradle, all the

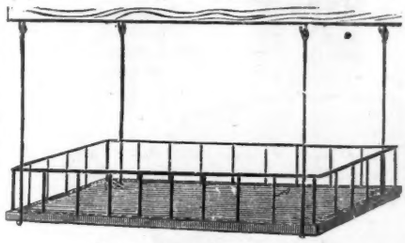


Fig. 2.—A BABY'S HAMMOCK.

mother had to do as she passed to and fro, was to give the hammock a push, and away it would go for several minutes, the swinging motion being better for the child than the rocking of the cradle. When the baby got too large, the hammock was dispensed with. We have still other Baby-tenders.

Household Hints and Helps.

FRUIT DRYER.—If any our correspondents have a contrivance for drying fruit different from any that we have published, they will aid several who have sent us inquiries for the best fruit drier. Of course we do not refer to any of the patented affairs—those we know about, but something that any one can make from inexpensive materials.

ANOTHER COAL BOX.—We add to the several plans of coal boxes already given one of which the sketch was sent by D. W., of Minerva, O., to whom we are indebted for the Baby Tender. The accompanying section (fig. 1), is from front to rear. The lower part of the box is 15 by 26 inches, and sits upon a base 3 inches high. The whole hight of the box is 26 inches, and the narrower, upper portion, is 15 inches square. Within is a sloping partition *d*, which divides the interior into two compartments, 1, for the coal, and 2, to which there is access by a door at *h*, holds kindlings and paper. At the top there is a lid, *g*, which opens as shown at *a*. At *e* is a slanting board, upon which the coal is shovelled up; above this is the sloping lid, *c*, which opens upward as at *b*. Our correspondent says that if the lid, *g*, is covered with zinc, it makes a very convenient place upon which to set hot articles.

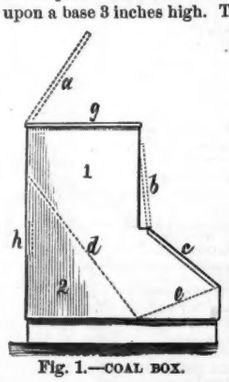


Fig. 1.—COAL BOX.

TRAPPING THE MOSQUITO.—"J. R. F." writes, referring to an article with this title in the *American Agriculturist* for November, 1878: "The above is all very well for Boston, but would be entirely inadequate in the land where the mosquito flourishes. Here is the way it is managed here by the ladies of the house, and which has proved very efficacious. They take a shallow tin vessel, as the lid of a blacking box, and attach it by a small nail, through the center, to the end of a broom handle or other convenient staff. Place in the vessel about a teaspoonful of coal-oil, and apply as recommended in the article referred to above. Instead of climbing on high chairs and chloroforming the insects by holding it three seconds to the ceiling, you will have the satisfaction of seeing them drop instantaneously into the bath prepared for them, where they are at once placed *hors de combat*, and that too before the trap comes nearer than two or three inches of the victim. This plan is cheap, simple, sure, deadly, and wonderfully expeditious. Try it. No patent on it."—By "coal-oil," we infer that our correspondent means kerosene. A small tin cup *wired* to a staff would be better, as it will be difficult to prevent leaking around the nail. If not kerosene, we will thank our friend to specify.

A SCOURING BOARD.—Our correspondent D. W. suggests a convenience, formerly more frequently seen in kitchens than at present, a board upon which to do the work of knife-scouring, with a box to hold the materials. The engraving, fig. 2, shows the affair. The board is 9 by 19 inches; the box is large enough to hold a Bath, or scouring brick, cloths, etc., and has a lid to shut down when not in use. A ledge all around the board to keep things from falling off and a ring to hang it by complete the affair. The use of knives with plated blades does away with much of the labor of scouring.

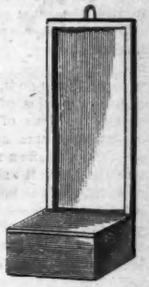


Fig. 2.

BOYS & GIRLS' COLUMNS.

The Doctor's Talks.

When I undertook to tell you some of the common facts about Gravity, the Center of Gravity, etc., I was surprised to find how difficult it was to say that which I wished to tell you, and not use terms which you would not be likely to understand, or to refer to things which I was sure you had not learned. If we talk about the *forces*, which act upon matter, we must in the first place know what is meant by matter; this led me to promise to tell you

SOMETHING ABOUT MATTER.

That some talks on this subject will be welcomed by many of you, I know from the questions that some of you have asked, and the father of some of the youngsters has written to ask that I accompany these articles by questions, so that he can make sure that his young folks understand it all. I can hardly do this, for no other reason than it would make these familiar Talks look too much like school lessons, and I don't want you to be prevented from reading them because they look too much like tasks... What I say just here is to

THIS PARENT AND OTHER PARENTS.

I have a great distrust of this question and answer teaching. If I were on a school-board, I would not allow a book to be used that had "questions" in it, or employ a teacher that would use the questions furnished by some one else. If a person is not so thoroughly at home in a subject that he can teach it not only without questions, but without a book, he should not teach at all. The book is for the scholar. A teacher should never open one in his class. If he has not his lesson many times better than the scholars—let him not teach.—But to come back to the young people. You will recollect that last month I could not get along without answering the question,

WHAT IS MATTER?

The briefest possible definition is: "Whatever occupies space."—A pea or a planet, will answer this definition. In this talk, I shall have to be rather dry—and give some definitions, but you must not be impatient for the experiments that I hinted could be given. We are now laying our foundation to build upon, and you know if the foundation be not solid, the structure will be shaky. It is not necessary for me to say that there are different kinds of matter—you know that already, it is as easy as bread and butter—two very unlike kinds of matter. Just now then we speak of matter in general—the kinds of matter will come along later. Now matter has certain properties or qualities, or peculiarities, which must belong in common to every thing that surrounds us; to a

grain of sand or a mountain, to a drop of water or an ocean. These are called

THE GENERAL PROPERTIES OF MATTER,

and before we go much further we must understand what these are. The first of these is SIZE or MAGNITUDE. Every body—here I must stop, because we have come across a new word, *i. e.*, new to this Talk, and used in a definite manner. A *Body* is a definite portion of matter, without regard to its kind. A dew-drop is a *body* of water—so is Lake Superior. A marble is a *body* of stone, and so is Bunker Hill Monument. So a body is a portion small or large, of matter of any kind. Every *body*, then, occupies some space—it has length, breadth, and thickness. The smallest body that we can see with our microscopes, has these—indeed we cannot think of a body so small that it has not some size. You will have no difficulty in understanding that one of the properties of matter is size. Do you find this dry, and begin to want some experiments? Well, here is one. When you get up to-morrow morning, put on your right boot first—well. Then put your left foot into the *same boot*.—"You will not try it."—"Why not?"—"Because you *know* you cannot do it."—You then have learned one more of the properties of matter, without knowing that it was called

IMPENETRABILITY.

Your right boot stands upon the floor, put your left boot in just the same place without taking the other away. "What nonsense to try," you will say; and it will be useless, for no power on earth can do it, for it is one of the properties of matter that no two portions of matter can occupy the same space at the same time. Take a small-necked bottle and hold it under a stream of water, or try to pour water into it from a large-nosed pitcher, or put into the neck of the bottle a close-fitting funnel and try to fill it by pouring water into the funnel. Your bottle will fill very slowly. Why?—because the space is already occupied by one body—air, and the other body, water, can not occupy that space until the other is removed, and the fuss and gurgling that the air makes in getting out of the way of the water, tell the story that two bodies can not occupy the same space at the same time. Impenetrability is the name fixed upon to express this fact.... If you would share your apple with another, you would cut it in two—I recollect when we used to do it by *bites*. Well, biting or cutting an apple only illustrates one of the properties of matter—a law of nature. Philosophers have fixed upon the word

DIVISIBILITY,

to express the fact that matter can be divided. You would think that this, as the French say, is something which "goes without saying." But how far can this division be carried? In this you touch upon a question that in former years philosophers quarreled over at a great rate. If there is but one apple and many boys, they can all be served, but the pieces will be small. If a whole army of boys, you could put the apple in a chopping tray, and make it fine enough to give a piece to each. If you take a bit of the apple the size of a pin's head and put it under the microscope, you can see that it is made up of cells too small to be seen by the naked eye; you know that had you a delicate instrument, and ability to use it, you could cut each cell in half, each half into other halves. How far could this go? So long as you could see a particle with the most powerful Microscope, that particle can be divided—you can not see a particle that can not be halved, or think of one so small that it can not be smaller.—But we are getting to very small things. It is one of the properties of matter that it can be divided.

HOW FAR THE DIVISION CAN GO

is not yet determined. To illustrate the extent to which matter has been divided, require figures that make one's head swim, for they take us into the trillions.

Our Puzzle-Box.

DROP-LETTER PUZZLE.

(Every other letter is omitted.)

1. —y—m—d—n.	A rough soldier.
2. —u—i—s—u—e.	A court of justice.
3. —a—e—s—c—.	A sort of bag or receptacle.
4. —c—p—n—i—e.	Crooked.
5. —r—a—h—r—u—.	Faithless.
6. —r—n—l—c—n—e.	A substance produced by the Norway Spruce.

PI.

Celerygin si a nucsbeast indecanto ni het aft fo smalain, dan soal ni mose gavebleet cansetbuss, morf chiwh ti si tradeapes yb micelach escreposs.

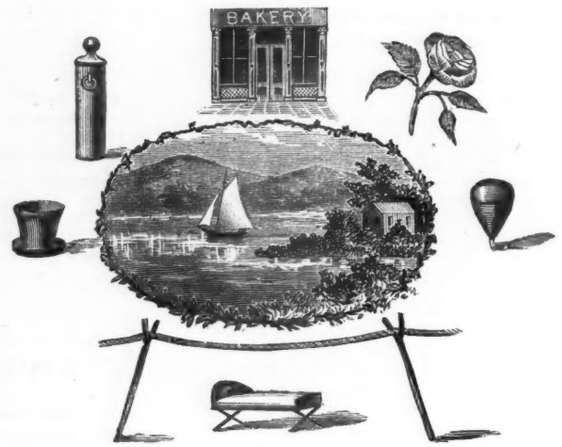
NUMERICAL ENIGMAS.

1. I am composed of 27 letters:
My 17, 16, 6, 14, 8, external appearance.
My 21, 15, 11, is a tch measure of liquids.
My 24, 4, 12, 5, is a covering.
My 11, 25, 13, 27, is a medley or mixture.
My 22, 23, 19, 20, is often very 3, 18, 2, 26, 10, and amusing.
My 1, 21, 11, 9, 6, 7, pertains to certain poetic feet.
My whole is the name of a book and its author.
LOUISE J. SPEED.

2. I am a word of 44 letters:
My 34, 23, 7, 31, is a fish.
My 1, 10, 26, 37, 6, 18, is a bird.
My 18, 2, 32, 20, 35, is to peddle.
My 19, 33, 21, is a Mexican tree.
My 44, 3, 29, 30, is to throw with violence.
My 5, 16, 34, 8, 25, is a river in Europe.
My 14, 13, 32, 35, is to delay, suspend.
My 15, 28, 39, is a kind of tree.
My 41, 38, 11, 35, is a plant, an herb.
My 7, 42, 31, is a little pot.
My 43, 34, 38, 36, is a mixture, a medley.
My 41, 38, 17, 40, is a reptile.
My 27, 4, 9, 32, 12, 21, is to bespatter.
My 24, 33, 19, 11, is to soil, to sully.
My whole is a good proverb. JACOB HALES.

ANAGRAMS.

1. O wise mare.
2. Coined, beside.
3. Eject a Saul.
4. Cased ape.
5. Mrs. Nip on time.
6. Singes deer.
7. Trip Laura €.
8. Sly chairs.
9. I tie bold man.
10. Lament love.



A METAGRAM PUZZLE.

METAGRAM.

(The puzzle called a metagram is made by selecting a certain word and making as many small words from it as possible. For instance, take the word "cream;" from it may be made the words a, arc, are, arm, ace, acme, acre, mace, mar, mare, me, etc., etc.)

Find a word of only four letters from which may be made two prepositions, a weight, a number, gained, two negatives, to possess, to draw, to know, to be used, and —in present circumstances.

CROSS-WORDS.

1. My first is in lion but not in bear,
My next is in trees but not in hair,
My third is in flower but not in fruit,
My fourth is in army but not in recruit,
My fifth is in orange but not in plum,
My sixth is in finger but not in thumb,
My seventh is in lark but not in bird:
My whole is a name you've often heard. H. S. F.

2. First in time but not in tune,
Second in May but not in June,
Third in come but not in stay,
Fourth in preach but not in pray,
Fifth in top but not in tall,
Sixth in whole but not in all,
Seventh in hill but not in mound,
Eighth in square but not in round,
Ninth in bought but not in sold,
Whole a famous cave of old. ISOLA.

EASY RHYMES.

(Fill the blanks with suitable words which rhyme.)

Once there was a little ——,
In nice clean clothes the child was ——,
Some tricks, he had, were pretty ——.
He used to call his father "——,"
Which sometimes made his mother ——
When he was naughty she was ——,
And when not naughty she was ——.
One time he scratched her with a ——.
His sister oft would shop and ——.

CHARADE.

See my first, a pretty little thing,
Led by my second with a string,
She would not trust it to a minion,
My whole, you'll find, is an opinion.

SCATTERED SQUARE.

(In the following verse you will find, in the first line, the first letters of the four words required for the square; the second letters in the second line, and so on; *e. g.*, by taking one letter from each line, you may make such words as *case*, *hart*, *tape*, *hide*, *maps*, *fear*, etc., etc.)

Come home, dear father,
We are waiting for you,
Supper is ready,
And mother is, too.

ANSWERS TO PUZZLES IN THE APRIL NUMBER.

EQUIVOCAL WORDS.—1. Account. 2. Back. 3. Cabin. 4. Face. 5. Grasp. 6. Fast. 7. Impress. 8. Jar.

PUZZLE.—Virginia (V—i—rg—in—ia).

PICTORIAL PUZZLE.—Central word "landscape," from which may be made sea, cans, caps, peas, asp, dance, spade, lace, lads, candle, panes, and ace.

HISTORICAL ACROSTIC.

B—unker Hill.
L—incoln.
A—lert.
C—arver.
K—idd.
H—enry.
A—rnold.
W—asp.
K—ane.

BLACK HAWK.

VERBAL DISTINCTIONS.—1. Adds, adze. 2. Ark, arc. 3. Bawled, bald. 4. Blew, blue. 5. All, ale. 6. Ayr, ere.

NUMERICAL ENIGMAS.—1. Light gains make heavy purses. 2. Edgar Allan Poe.

HIDDEN COINS.—1. Dollar. 2. Rouble. 3. Franc. 4. Lira. 5. Mark. 6. Sol. 7. Eagle. 8. Dime. 9. Yen. 10. Thaler. 11. Peso.

METAGRAM.—The word is *thread*, out of which may be made the different parts of speech, thus—A, the, Ah! ha! art, ear, earth, era, hat, hate, hart, hater, hatred, hare, herd, heart, heat, head, date, dart, death, dearth, rat, rate, tar, tare, tea, tear, thread, trade; are, ate, eat; had, hated, hear, dare, read, tread; dear, red, he, her; at.

BLANK DECAPITATIONS.—1. Grumble, rumble. 2. Keel, eel. 3. Glad, lad. 4. Fuse, use. 5. Grow, row. 6. Haunt (or taunt), aunt.

CROSS-WORD.—Weeping willow.

ANAGRAMS.—1. Irrigation. 2. Obstacles. 3. Distinguish. 4. Enemies. 5. Destroyed. 6. Political. 7. Sovereigns. 8. Afterwards. 9. Attractive. 10. Reasonable.

DROP-LETTER PUZZLE.—1. Uprightness. 2. Disconcerted. 3. Sacrilegious. 4. Importance. 5. Inebriated. 6. Legislature. 7. Meddlesome. 8. Correspondent.

PI.—When all the blandishments of life are gone,
The coward sneaks to death, the brave live on.

"Wants a Microscope Badly."

An Ohio boy writes: "I read the description of the new Compound Microscope, and I want one very badly. I have used the Simple Microscope you sent last year, a great many times, and most of the boys and girls here have been delighted with what it shows. Now we must have the grand Compound Microscope, but how shall we get it? We tried to collect money enough, but all our pocket money put together don't make quite $2. I have a piece of potatoes, all my own, which I think will bring me more than $10, next fall, but I can't wait until then. We want the microscope this summer. How *shall* we get it?—Can't you give it as a premium, if we get you some subscribers?...."

[We would like to help our young friend, and a great many others who want the Microscope, for we know it would be very interesting and valuable; but it costs a good deal to make so complete an instrument. One little glass in it, not so large as a pea, requires a great many hours of careful grinding by a most skillful workman. The Publishers say it costs too much yet to give it as a general premium. But they allow us to say that if "Ohio Boy" or any other young reader of the *American Agriculturist*, will hunt up *ten* entirely *new* subscribers for the paper at $1.50 a year, and send the names and money to the Publishers, one of these new Microscopes will be presented to the boy who does so; or several can join in getting the club and own the Microscope together. If you can borrow ten dollars, the cost of the instrument, you can send that on and get it now, and then get the subscribers afterwards, and deduct the $10 from the last names sent in. Remember that the ten subscribers must be *new* ones, and must be obtained after June 1, 1879.—EDS.]

The Doctor's Correspondence.

I am glad that the letters which come now, at the opening of spring, show that the awakening of the buds and blossoms has aroused the boys and girls, and nearly all the letters of late, are as generally about plants as those of a few months ago were about insects. Not that I do not like to have you ask about insects, but one does not want *all* insects. Where would the insects be if they did not have the plants to feed upon? Some of you think that I am caught this time, and will write to tell the Doctor that "the

CLOTHES-MOTH AND THE CARPET-MOTH

do not feed upon plants." Let us see about this. The Carpet-Moth—as many of your mothers know to their sorrow—feeds upon the carpet; the carpet is made of wool; wool grows upon the back of the sheep, and the sheep—what does that feed upon?—"Plants"—you will all say. So you see that it amounts to the same thing. The Carpet-Moths and many other insects, are a little particular about their food; they do not take the raw material in the form of grass and other plants, but they let the sheep and other animals do the rough work; prepare the food for them, so to speak. These had rather dine off of a few little threads of wool than to have a pasture full of the finest grass and the sweetest clover. Now let us stick a pin here—for it is something to think of.

ALL FOOD OF ANIMALS IS PRODUCED BY PLANTS.

You may not always be able to trace every kind of food that animals of all kinds eat, back to the plant that produces it, but when you find that you can not, you must ask me to help you. The above statement covers so much that it is quite as long a lesson as you need for the month, but some who have written to ask questions will

perhaps not think so. Here is one girl, who writes that she likes to read what I say about plants, and wishes I would tell you "some more

ABOUT WONDERFUL PLANTS."

When we think about it, is one plant any more "wonderful" than another? Some are more rare, others more strange and unusual, because they are in various respects different from the great majority of plants, but after all, what a wonder is the commonest plant! Its very first appearance, as it starts from the seed—the seed itself, what a mystery it is! Did you ever think of this? Suppose that all the plants that we now know and see about us, were only increased by cuttings, just as rose-bushes, geraniums, potatoes, etc., now are multiplied, by setting out a piece of another plant. Suppose a traveller should come from some far country with a spoonful of—we will say—cabbage seed in a vial, and tell us that each little brown hard grain would produce a cabbage! Who would believe him?—Then some learned society would look at the matter, see the seed planted, and in a few days would come a little plant—not at first much like a cabbage, but growing every day more and more like one, and at last this strangest of stories would be believed! How people would come from far and near to just look at the seed.

BARNUM NEVER HAD SUCH A SHOW

as the growing of a cabbage from one of these grains would be! If a seed—every seed, from one so fine as to be almost like dust, to one as large as a cocoa-nut—is such a wonder, still greater is the plant that comes from the seed, and will produce more like it. Look at any plant, a pink or an apple-tree—what is it doing? You know the green leaf, the fragrant flower, the delicious fruit—where do they come from?—"The plants," you will say.—But how?—"They grow."—That is just as far as many grown people get. Observe the plant; it stands in the earth where its roots are hidden; its stems and leaves are in the air where they receive the rain—these are all, the earth, the air, and the water, and not only pinks, apples, but all our food comes, and that of all animal life, from these. Ah, yes, there is one thing more—the blessed sunlight must help. Isn't there something wonderful about every plant when you look at what it is doing?—I may say more about this work of the plant as it builds up fruits, grains, and the thousands of other kinds of food—but just now I will tell you about

SOME CURIOUS MOVEMENTS OF PLANTS.

A few plants, like the Sensitive Plant, which shuts up its leaves at the slightest touch, and the Venus' Fly-trap, that brings the halves of its leaf together with a snap, quick enough to catch a lively insect, are well known examples of movement in plants; the motions in these are so quick as to be noticeable, and are often described as among the wonders of plant life. But there are other plants which move, very slowly, it is true, but not the less certainly. If you watch the different climbing plants you may see that the end of a bean-vine or a Morning Glory may be straight one day, and the next be tightly coiled around a pole or a string. It is not likely that any one twined the stem in this manner, and it must have moved of its own accord, so to speak, and gone round and round. It did this so slowly that however closely you watched you could not see it move, but the coils of the stem around the pole or other support show plainly that the motion has taken place. There are many interesting things to notice about the various climbing plants, but I can call your attention now to only the

PLANTS WHICH CLIMB BY TENDRILS.

Many a boy has hoed the cucumber, the squash, and the melon vines, thinking it a task, and not knowing that these vines had anything to interest him, much less that they could show him some very wonderful facts. Still it is true that every vine of this kind has a wonder—indeed, many wonders—to interest those who care to see. You know that cucumbers and related plants while left to themselves will spread upon the ground. You perhaps also know, that if given a chance, such as brush near at hand, they will climb upon it. You perhaps have noticed that when such plants do climb, they catch upon and hold to the brush or other support by means of long, slender twisted helpers, called *tendrils*. But you need not confine yourselves to plants of this kind, for many other climbers show the same thing; the grape-vine is also a good illustration, as are some of the climbers cultivated for ornament. A growing cucumber or squash is to be found in every garden, and is a good plant to watch.

VINE CLIMBING BY TENDRILS.

If you observe the tendril, the long, slender, wire-like shoot, whether on one of these, or on the grape-vine, you will notice that it is at first long and nearly straight, but, as shown in the engraving, with a slight hook at the end. It is a fact, which you may observe, if you watch closely, from time to time, that a tendril has a slow, sweeping motion, and when its hooked end touches a twig, or a part of its own plant, it catches and holds fast to it. Then there happens a very curious thing, the tendril being made fast at the ends, begins to twist itself into coils, and thus brings the stem of the plant closer to the support. There is something very peculiar about this coiling which I wish you to especially notice. If the tendril coiled all in one direction, it would be very badly twisted, so you will find that when a tendril is fixed at one end, it is coiled in two directions; one part will be coiled from left to right, and the other from right to left, to offset the twisting of the other part. If the end of the tendril is not made fast, of course the whole can coil in one direction. The plant in the engraving shows what you may observe in many vines; a straight tendril, with a slight hook in the end, in search of something to catch upon; a tendril not fastened at one end, twisted all one way, and a tendril which has caught and made fast, and is twisted in both ways.

WATCH YOUR CLIMBING PLANTS.

You will find that some, like the bean, twine about the pole or other support; others, like the grape, cucumber, etc., have special organs, tendrils, to help them climb; in others, like the pea, the end of the leaf is formed into a tendril, and others still, climb by the twisting of the leaf stalk. But as some of you wish to be told of

WONDERFUL PLANTS,

I can tell you of one that seems to me as much unlike other plants as any I ever saw or read about. You know that many plants—for example, beans, squashes, Morning-Glories, and a host of others—when they first come up, bear a pair of "seed-leaves;" as the plant grows, other leaves appear, which are quite different from these first, or seed-leaves. In the bean, where the seed-leaves are very unlike the other leaves, they soon fall away; in the squash and others, they grow larger and remain for some time before they perish. In Africa a plant has been discovered which

NEVER HAS ANY OTHER THAN SEED-LEAVES!

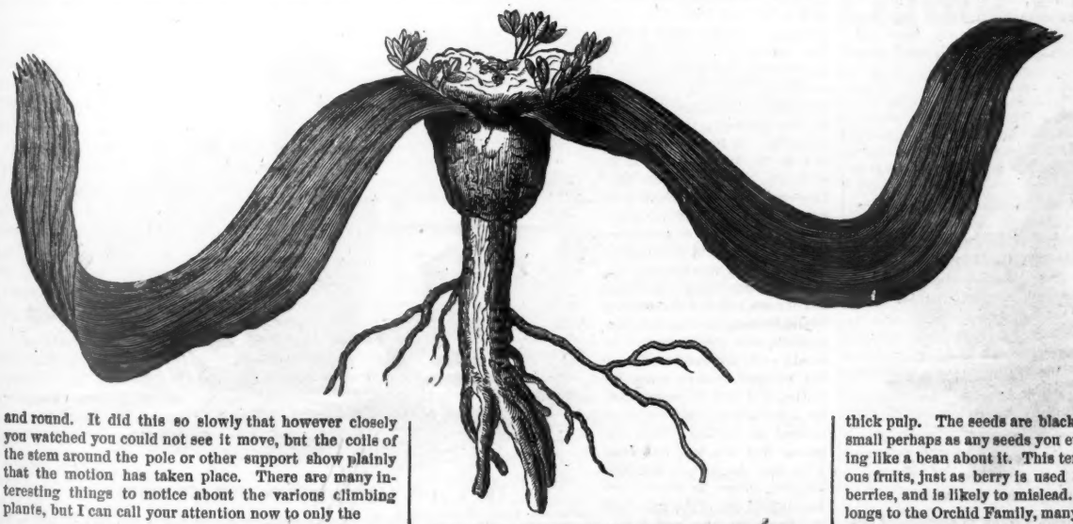
Were this an annual, and like the bean and squash, die at the end of the season, it would not be so strange, but this plant is a long-lived one, living on for a century or more, and never having any other leaves besides the pair which came from the seed. The engraving will give you the strange appearance this plant presents. It is found in a sandy region in western Africa, where the whole country is covered with these wooden blocks, seldom over a foot high, and from a few inches to five or six feet across. Its leaves are but two, and these the original seed leaves, which are, of course, evergreen, and grow to the length of six feet, being in time much whipped and torn at the ends. This plant was discovered by an African explorer, Doct. Welwitsch, and it bears his name, being called *Welwitschia*. One of the most interesting things that I saw at the Centennial Exhibition was a specimen of this plant, with a trunk about two feet across. It was in the Portuguese collection, but being without a label but very few who saw it knew what it was....Charley Wilson, in Mass., wishes me to tell him

"ALL ABOUT THE VANILLA-BEAN,

how large are the seed, and is it really a bean?"—Charley is more cautious than a man who called on us a few years ago, to know where he could get Vanilla-beans. I found that the man was on his way to Florida, intending to go into the cultivation of Vanilla-beans, which he supposed grew like Limas or other pole beans, and was all ready to start except getting his beans for seed. The poor fellow was much disheartened when I showed him that the Vanilla-bean was not a bean, and probably would not grow in Florida at all. The useful portion of Vanilla is the dried seed-pod; this is 8 to 10 inches long, about as thick as a lead pencil, but wrinkled and flattened—and within contains the seeds, which are surrounded by a thick pulp. The seeds are black and shining, and are as small perhaps as any seeds you ever saw. There is nothing like a bean about it. This term bean is used for various fruits, just as berry is used for things that are not berries, and is likely to mislead. The Vanilla plant belongs to the Orchid Family, many of which are

AIR-PLANTS OR EPIPHYTES,

that is, plants which live upon trees, without any connection with the ground. Vanilla is a climber, attaching itself to trees by means of roots thrown out at every joint, and though it at first has roots in the ground, it can grow without these. It is easy to see that a plant of this kind can only flourish in warm and damp forests, and the places where it can be cultivated are very few indeed.



STRANGE AFRICAN PLANT.—THE WELWITSCHIA.

Our Oldest City.

When we read, in history or in fiction, of the city walls and the watch towers, the strong-hold and its draw bridge, portcullis, and moat, and all, then of men who wore armor, and went in search of impossible things, the story takes us back, far back into the past ages. Yet we have here, in the United States, in this busy, very modern country, a city, which has all these old-time surroundings. It was built long before New York, Boston, or Philadelphia, and it still stands with enough of its old-time peculiarities remaining, to be unlike any other American city. You, of course, know that this oldest of our cities is Saint Augustine, or, as it is now spoken, San Augustine. We speak of it as our oldest city, the first fort having been built in 1565, but it has an antiquity far beyond that. The city walls, the fort, and the principal buildings are of a coarse material, called *coquina*. (pronounced *ko-kee-nar*). Examine this, it does not need a glass, you will see that this, which is used as a building material as if it were a stone, is made up of bits of small shells. Every little shell in this mass has cost the animal that once lived in it, years to build up, thin layer after thin layer; then, after the animals have died, the shells have been broken up by the action of the sea, and in the course of time slowly cemented together, to form building material of many feet in thickness; you can see that, however old the city itself may be, the material of which it is built, takes us so far back into the past that we can not express it by years, and can only say that this material was prepared for the building of the city "in early times." Should you ever go to San Augustine, you would find this *coquina* at every turn, for it was not only used in the early times for building, but for ornamental-work; as when first quarried it is soft, though it becomes very hard upon exposure, it can be easily wrought with a hatchet, and with such tools it was worked into fence-posts, fountains, vases, and the like. However far into the past thinking over the material of which the city is mostly built may carry us, there is much that is curious in its history as a city. If we were now to read of a young man who started off in search of a fountain, the waters of which should give those who bathed in it, perpetual youth and beauty, we should laugh at the folly of the person. Yet it is only a little over 300 years ago that a Spaniard, Ponce de Leon, having heard of such a fountain, started out in search of it. He started from Porto Rico and visited all the neighboring islands, and at last discovered what he thought to be a large island, and landing not far from the present San Augustine, he took possession of it in the name of the King of Spain, calling it, from the fine vegetation, Florida, or the land of flowers. This all happened in 1512, several years before any settlement was made. San Augustine was first settled in 1565, and its early history is one of wars, taking and retaking by the French, the Spanish, the English, and the Indians. It would seem strange to come to any of our modern cities or towns, and find it surrounded by a wall, and could only be entered at certain places by gates. Yet this was the case with San Augustine, and the old gate, shown in the engraving, is still one of the principal entrances on the land-side—we say gate—but it is more properly the gate-way; the gate itself, which formerly closed this against enemies, having long ago disappeared. Besides the city wall, San Augustine has a striking relic of the olden times in its old fort, San Marco. This is also built of the shell-stone, coquina, which is found in the greatest abundance on Anastatia island; this is a long, low island, which is not far from shore, and forms a breakwater to the harbor. The first Spanish settlers built a fort as early as 1565, which was taken by the English 20 years later, they then gave up Florida, and do not seem to have made any attempt to settle there for many years. The Spaniards, however, again returned, and this time built the present fort. It was over a century in building, and was not finished until 1756. But there is a sad story belonging to this fort; these old Spaniards knew how much easier it was to have work done by others than to do it themselves, made slaves of the Indians, and all the labor of building this fort was done by Indian slaves. The poor Indians had a hard time of it, taken from their idle life in the mildest of climates, and set at hard work. The interior of the fort has been made over anew, and furnished with modern guns, and a new name—Fort Marion—it retains enough of its ancient peculiarities to show how it appeared a century ago. It had its draw-bridge, which could be raised by heavy chains, and thus cut off all entrance, exposing only the moat or broad and deep ditch which surrounded the fort. The friend who passed a portion of a winter in this oldest of our cities, and sent us a sketch of the city gate, also sent some drawings of the fort, two of which are given here. One of these, figure 2, shows the watch tower, from which there is a fine outlook seaward, and also inland. Fig. 3 shows a quaint little sentry box, curiously placed upon a corner, to allow the sentinel to look in two directions, and be safe from the arrows of the Indians. We do not build forts in this manner now. Such affairs as this watch-tower and sentry box would make altogether too good marks for our long-range cannon, one ball from which would shatter them into rubbish. But we are glad that these things are left to remind us of the early times. One who visits San Augustine now does not enter by permission at a particular gate, but goes into the city by rail, and many of the ancient buildings are now modernized, and used as stores. Still this old city grows very slowly; it has very little of commerce or manufactories, and its chief business comes from invalids and others who find in its mild climate, its healthful sea air, and its quiet, a pleasant change from the severity of northern winters.

Fig. 1.—THE ANCIENT GATE-WAY AT SAN AUGUSTINE, FLA.

Fig. 3.—SENTRY-BOX, FORT SAN MARCO.

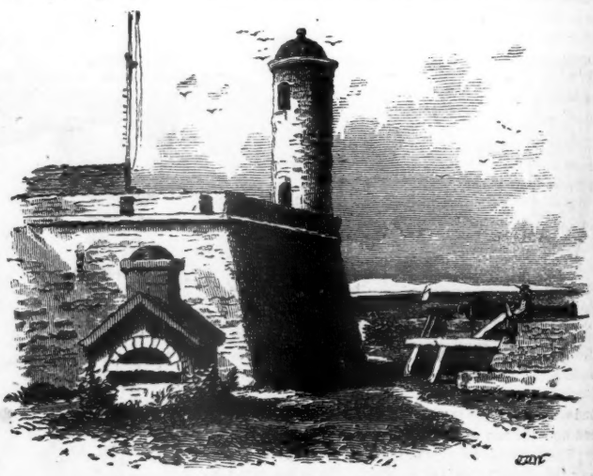


Fig. 2.—THE WATCH-TOWER OF FORT SAN MARCO.

The following actually occurred in a grammar school in this city lately: Subject under discussion Joan of Arc. Schoolmaster—"Now, Miss Jones, what was Joan of Arc Maid of?" Miss Jones hesitated in answering. Miss Jones, did you hear my question? What was Joan of Arc Maid of? Miss Jones—"Made of—dust, sir," she answered.

OFFICE OF FISK & HATCH,
No. 5 NASSAU STREET,
NEW YORK, MAY 17, 1879.

FINAL SALE OF FOUR PER CENT BONDS.

Funding of the Ten-Forties and the remainder of the unredeemed Five-Twenties.

Having a large interest in the recent subscription made to the Treasury Department for the final negotiation of the Four per Cent. bonds remaining unsold, we are prepared to furnish the bonds in large or small amounts, Coupon or Registered, in all denominations, for cash, or in exchange for called Five-Twenties, Ten-Forties, or other Government bonds, on the most favorable terms, and to extend to investors and institutions the best available facilities for purchase or exchange.

A full supply of Coupon Bonds will be kept on hand at our office for immediate delivery in denominations of $50, $100, $500 and $1,000.

Registered Bonds in denominations of $50, $100, $500, $1,000, $5,000, $10,000, $20,000, or $50,000, registered in the name of the purchasers, will be delivered as soon after the receipt of the order as the certificates can be received from Washington.

Exchanges will be made with National Banks for bonds held to secure circulation, and the Four per Cent. bonds will be placed with the Treasurer of the United States, and the Five-Twenties, Ten-Forties, or other bonds withdrawn, without additional cost to the banks, and without the employment or advance of any money on their part being required.

Orders or enquiries by mail or telegraph will receive careful and prompt attention, and parties desiring to make their purchases or exchanges in this way, will receive all the advantages that their personal presence in the market could secure.

The remarkable success of the Treasury Department in the negotiation of the Four per Cent. bonds during the last four months, within which time over $500,000,000 have been sold, affords occasion for universal congratulation among all patriotic citizens, whatever may be their personal disappointments as bondholders, that their bonds bearing higher rates of interest than four per cent. have not been permitted to run for a longer period, and that the life of their investments in Five-Twenties and Ten-Forties has been so rapidly and unexpectedly cut short.

It demonstrates, moreover, that the credit and borrowing power of the United States Government has become fully and firmly established on a basis of less than four per cent. per annum, and, in connection with other conditions incident to it, indicates that the Four per Cent. "Funded Loan" of the Government must shortly advance in this and the other financial markets of the world to a considerable premium above par.

In addition to the $194,000,000 of Ten-Forties called in by the Secretary of the Treasury, the reinvestment of the proceeds of which would absorb the entire amount of the Four per Cent. bonds, recently subscribed for, and all the $10 refunding certificates which the Secretary reserves for popular subscriptions, it was estimated that not less than $100,000,000 of the Five-Twenties called in were, at the time of the final subscription for the Four per Cents, still unredeemed in the hands of investors and institutions, the proceeds of which must seek reinvestment within the next ninety days.

Of the $121,000,000 Four per Cents., taken by the First National Bank, ourselves, and others, over $75,000,000 have been disposed of in less than thirty days, to permanent investors. At this rate the balance will be absorbed long before July. With the large demand from London; with the demand from holders of the maturing Five-Twenties; with the amounts being taken in exchanges by holders of Fives and Sixes of 1881; with the increasing demand from the people for cash, the amount of Fours available to supply the holders of Five-Twenties of 1867 and 1868 and Ten-Forties maturing in July, is daily becoming smaller; and therefore, those who delay exchanging must not be dissapointed if they find the market price of the Fours steadily advancing.

The immense quantities of gold poured into the coffers of the world the past ten years; the enormous amounts of values wiped out of existence; the depreciation in state, city and railroad bonds and stocks; the losses by savings banks and institutions of trust the world over; the fact that the flash of the cable and telegraph wires, and the speed of the locomotive and steamer have quadrupled the capacities of capital, while the reduction in the cost of material, machinery, labor and products, has largely reduced the requirements of business, even with the fullest activity and prosperity in business enterprises—all tend to show that we have entered on a long era of cheap money, while the marvelous drawing together of the nations of the earth in financial matters, makes the bonds of the United States Government almost as homelike in England, Germany and France as their own national bonds.

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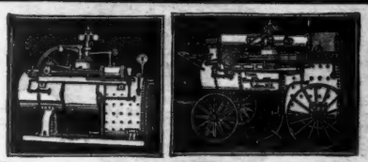

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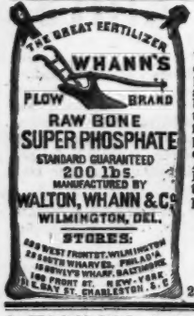

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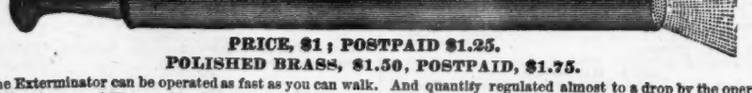

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Best in use for mowing away hay in barns or stacking, being adapted for either purpose. Has no equal for **simplicity, durability** and **good work.** The track is **self-adjusting** and is easily put up. Will be sent to responsible parties on trial. **Send for special terms for introduction.** Price within reach of all. Send for descriptive Circulars and Price List to **E. L. CHURCH & CO.,** Manufacturers, Harvard, McHenry Co., Ill.

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Consisting of Carrier, Grappling Fork, Pulleys, and Hooks. For unloading Hay, Grain, Beans, Corn Stalks, loose or in bundles, etc. Can be used in any barn. Also, Improved Stacking Apparatus. Send for Circular, and get valuable information.

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The Anti-Friction Hay Carrier,

elevates perpendicularly, and conveys horizontally any desired distance. **Many Thousands in Use.** The cheapest, strongest, most convenient, and durable Carrier made.

THE NOYES GRAPPLE FORK handles fine, coarse, or loose hay; is cheaper than a harpoon, easy to handle, strong, durable, and guaranteed the best Horse Fork made.

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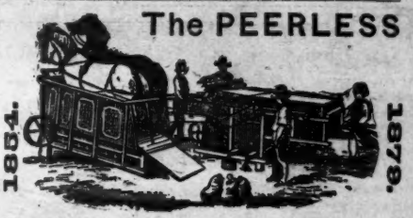

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The **Cone Gearing, Double Force Feed** and Patent Fertilizer Sower, make it always accurate and reliable.

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THE "HAGERSTOWN" DRILL

Most successful Grain-Drill in use. Can change quantities of seed *while in motion.* Strong, durable, and simple, with Pin or Gum Spring Hoe and Grass Seed Sower. **Standard Fertilizing Drill.**

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DOUBLE HULLER Clover Machine.

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It is **Light, Strong, Simple, Easily Operated, Completely Under Control of Driver, Perfectly Balanced.** Has a Cased Gearing, **Folding Platform. No Weight on Horse's Neck. No Side Draft.**

Prices Reduced to the lowest point at which the **High Standard of Excellence** in **Material** and **Workmanship** can be maintained. Descriptive circulars forwarded by mail.

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Stands unequaled for ease of team, the Horse-Power runs, as shown by the records, with **more than one-third less friction than any other.** The only machine awarded a

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222 First Premiums. 15 Silver Medals.
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Cheapest and best for all purposes—simple, strong, and durable. Also Horse Powers and Gin Gear.

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Vertical Engines, with or without wheels, very convenient, economical and complete in every detail, best and cheapest Vertical in the world. Fig. 1 is engine in use. Fig. 2 ready for road.

Fig. 2.

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The Farquhar Separator

(Warranted)

Prize Agricultural Works, York, Pa. Lightest draft, most durable, simplest, most economical and perfect in use. Wastes no grain, cleans it ready for market.

Steam Engines, Horse Power and Threshers of all kinds. Also, Portable Cultivators, &c., &c.

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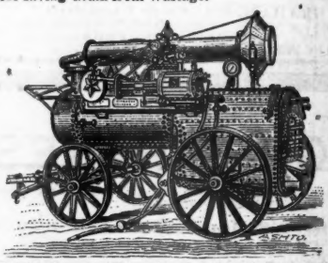
ORIGINAL AND ONLY GENUINE

"VIBRATOR"

THRESHING MACHINERY.

THE Matchless Grain-Saving, Time-Saving, and Money-Saving Threshers of this day and generation. Beyond all rivalry for Rapid Work, Perfect Cleaning, and for saving Grain from Wastage.



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OUR Unrivaled Steam Thresher Engines, both Portable and Traction, with Valuable Improvements, far beyond any other make or kind.

THE ENTIRE Threshing Expenses (and often three to five times that amount) can be made by the Extra Grain SAVED by these Improved Machines.

GRAIN Raisers will not submit to the enormous wastage of Grain and the inferior work done by all other machines, when once posted on the difference.

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MARVELOUS for Simplicity of Parts, using less than one-half the usual Belts and Gears. Makes Clean Work, with no Litterings or Scatterings.

FOUR Sizes of Separators Made, Ranging from Six to Twelve-Horse size, and two styles of Mounted Horse Powers to match.

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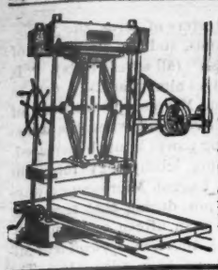

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Made entirely of *Galvanized Iron*
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250 MARYLAND FARMS, in Tracts from 30 to 300 acres.
Near railroad and navigable Salt-water (with all its luxuries), in Talbot Co., Md. Climate mild and healthy. Titles good. New Pamphlet and Map showing *location*, free.
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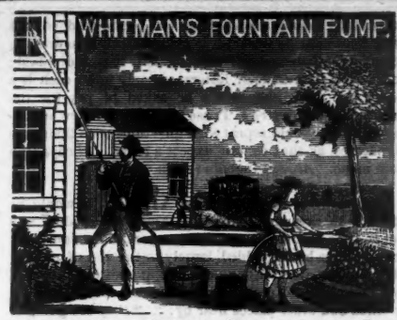

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We manufacture the old reliable **Stover**—the well tried, strong, durable self-regulating, solid wheel **Wind Mill,** which took *the* Centennial Diploma, as well as a Medal. Others may talk, but we refer to the **Official** Centennial Report. Also the **Stover** $20.00 Oscillating Feed Grinder, (with O. E. Winger's late improvements), which is operated by 10 and 12 ft. Pumping Wind Mills—a novel and perfect Mill for grinding all kinds of grain for stock and horse use. Agents wanted everywhere. Branch factory at Greencastle, Pa.
Send for catalogue to **STOVER WIND ENGINE CO.,**
Freeport, Ill., U. S. A.

10 FEET BANNER WIND MILL, The best made. Latest Improvements. Warranted 5 years. N. P. MIX, Avenue, O. **$75**

Myers' Improved Wind Mill.
Perfectly self-regulating and the only Wind-Mill that stands on the derrick in perfect balance, in gear and out of gear. It is a solid Wheel-Mill, and is warranted to be well made and to stand the most violent storms. Every farmer, stock-raiser, and dairyman should have one for pumping water for stock, grinding feed, etc.
Send for Circular and Price-List.
Silver & Deming, Mfg. Co.,
Salem, Ohio.

HARRISON'S MILLS,
NEWLY IMPROVED.

New Standard Flouring Mill.
New Standard Corn Mill.
Capacity of 12-inch Mill, 2 to 12 bus. per hour; capacity of Light 20-inch Mill, 6 to 40 bus. per hour.
Wholesome Bread, Fine Flour, High Speed, Quick Work, and Economical Milling Fully Established. For illustrated catalogue, describing the Harrison System, Address Estate of
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BURR MILLS.
EVERY FARMER HIS OWN MILLER.
The best *Vertical* and *Horizontal* French Burr Grinding Mills, Portable Flouring Mills, and Mill Machinery. They possess numerous original and valuable improvements. The best Mill ever made. Send for Illustrated Catalogue and be convinced.
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Every farmer should have them.
Over 20,000 in Use.
Every machine is guaranteed to give satisfaction, or no pay. Price of mills, $12; shellers, $5. Send for descriptive circulars and terms to agents.
LIVINGSTON & CO., Iron Founders, Pittsburg, Pa.

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We will with pleasure send you a sample copy of our **MONTHLY GLEANINGS IN BEE CULTURE,** with a descriptive price-list of the latest improvements in **Hives, Honey Extractors, Artificial Comb, Section Honey Boxes,** all books and journals, and everything pertaining to Bee Culture. *Nothing Patented.* Simply send your address on a postal card, *written plainly,* to
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containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Continued from Page 215.

In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.

Back numbers of the "American Agriculturist," containing articles referred to in the "Basket" or elsewhere, can always be supplied and sent post-paid for 15 cts. each, or $1.50 per volume.

Wheat or Rye for Fowls.—"J. L. L.," Sandwich, Mass. Wheat is better than rye for poultry; no other grain is so productive of eggs as wheat; buckwheat is the next best food, barley next, corn next, oats next, and rye the poorest—at least in the writer's experience.

Retention of a Calf.—"G. B.," East Aurora, N. Y. Instances of the retention of a fœtal calf in the uterus, are not unknown, although somewhat rare. Cases have occurred in which the cow has recovered and has lived for years, but always in indifferent health. When such trouble is suspected, the calf may be successfully removed by a competent veterinary surgeon.

Preparing Land for Wheat.—"G. G.," Greenville, Ill. To prepare a piece of sod land for wheat, pasture sheep as you suggest, feeding them some extra food, such as wheat or rye bran, until July or August, then turn down the sod, and roll it if possible, and work the surface with a cultivator, shallow, so as not to disturb it, or harrow it to keep down weeds and freshen the ground, until sowing time, when the seed may be put in. The sod will rot in time for the wheat to benefit from it before the winter.

Milk for Cheese.—"P. T. D.," Salina, Ont. The average quantity of pure milk needed for a pound of cheese is ten pounds. It varies during the season, and also in proportion to the amount of cream in the milk. A smaller quantity of rich milk than of poor is required to make a pound of cheese.

Firing for Ring-Bone.—"A. L. S.," Warners, N. Y. It is very dangerous to treat a ring-bone recklessly. Firing and blistering should not be done without good reason, and by a competent person. The country is overrun with quacks who call themselves veterinary surgeons, and who are always ready to recommend such severe measures, but owners of horses should hesitate before putting valuable animals in their hands.

A Well Furnished Farm.—"L. S. T." The proportion of farms that are well furnished is small. For the most profit, a farm should be so well stocked as to supply a large part of the manure to keep it in a fully productive condition, and there is also needed a sufficient cash capital to buy supplementary food to furnish rich manure, or otherwise the needed artificial fertilizers. Farmers are, however, gradually improving their circumstances in this respect.

No Butter.—Mrs. "B.," Roanoke Co., Va. After a cow has been milked for 18 months, the milk has changed considerably, and there is difficulty in getting butter from it. From the time that a cow is fresh, a change in the milk is gradually taking place, and churning becomes more difficult. In some cows this is worse than in others. Churning is made easier by warming the cream up to 65 or 70 degrees.

Metallic Shingles.—Tin, or other metallic roofings have long been used; the success of these, depends upon having the whole roof covered by one continuous sheet; a single break or defect from rust impairs the whole. In the "Metallic Shingles," the roofing is of iron in sections, each about as large as a wooden shingle or roofing slate; each piece is ingeniously grooved and ridged in such a manner, that while it adds greatly to the strength, it allows of the complete matching and fitting, and facilitates the carrying off of water. The iron is covered with a paint claimed to completely prevent rust. The makers claim this roof to be superior to slate, tin, or wood, in many important particulars; the specimen subjected to our inspection, impressed us very favorably.

Gas-Lime.—Several subscribers ask about gas-lime. This is a refuse from gas-works, and, as we have before stated in these columns, it at first contains some injurious ingredients, but after lying exposed to the action of air and weather for some months, these are neutralized, and the result is a substance resembling "air-slacked" lime in composition and effect. One enquirer asks if "gas-lime can take the place of plaster in a compost, to *increase decomposition and arrest escaping ammonia.*" But plaster only does one of these things, the latter; the property which enables it to "fix" the ammonia, is the very thing that would *prevent* decomposition. "Gas-lime," when fit to use, is mostly a carbonate of lime (plaster is a sulphate); therefore, like "air-slacked lime," its effect in a compost would be to promote decomposition. It has value for use on heavy soils, just as ordinary slacked lime is employed.

Cut-Worms and Cabbage-Worms.—"R.," Ridgefield, Conn., writes that he mixes Paris green and plaster as for potatoes, and puts half a teaspoonful close about the stalk of each cabbage plant. As the cut-worm takes off cabbages even with the ground, this may answer. He further says that he dusts cabbages, cucumbers, and other vines with this, and has perfect success in killing the insects. We see no objections to applying it to the vines, but we should decidedly *not* use it upon cabbages. There is too much risk in this.

"Please Make a Mark on My Paper."—It not rarely happens that a subscriber with the intention of saving us trouble, suggests that we may thus answer his question—"if yes, please make a mark on my paper." Others suggest that we write on a slip, and "put it in my paper," or to write upon the margin. Every method of conveying information other than something that relates to the paper itself, is filegal. We now have the right to designate that a paper is from a particular person, but beyond matters like this; all conveyance of intelligence not printed in the paper is against the law. Were this not so, the proposed plans are altogether impracticable. The wrapping and mailing of the paper is done several stories away from the editorial rooms, and it would be easier, and therefore cheaper, for us to write several letters than to attempt to find out when the papers for a particular Post-office were being mailed, and mark the paper for some one at a given office. All will see that requests like the above can not be complied with.

Making Babbit Metal Boxes.—"F. D.," Monroe Co., N. Y. In lining iron boxes with Babbit metal, the shaft and shell of the box are fitted together in the position they should occupy when the box is lined; pieces of thin wood are cut to fit the ends of the box and the shaft, to prevent the liquid metal from running out through the spaces there, as it is poured in. One-half of the box is filled at a time with metal melted in an ordinary melting ladle, the edges of the metal being trimmed afterwards with a chisel or fine saw, if necessary. There are holes drilled in the inside of the box, into which metal runs, and holds the lining into its place. The oiling holes are filled with plugs of wood, which fit close to the shaft, before the metal is poured in, or the holes may be bored out.

Sweeny in Horses.—"J. H. D.," Greenbrier, Ala. Sweeny is not a disease, but only the effect of disease which prevents the use, or causes atrophy or shrinking, of the shoulder muscles. The source of trouble must be sought elsewhere. This is usually to be found below the shoulder, and in the joints or in the foot. Examine carefully by pressure all over the limb, and by striking the foot with a light hammer; when the spot is touched, the horse will show it by flinching. Then the proper treatment, which cannot be indicated without knowing the precise circumstances, is to be applied. A good veterinary work, such as "Dadd's Horse Doctor," should be kept and studied by every owner of horses.

Your Name!—It seems necessary to say to new subscribers—our old friends understand it—that a letter without name, or signed "A Subscriber," "A Reader," or with initials only, has not the slightest claim to our attention. If an inquirer does not think the matter of sufficient importance to sign his letter, we do not think it of sufficient importance to answer it, and it goes into the waste basket. *Please observe*—More than half of the letters we receive, are of interest to the writer *only*, and we cannot take up space in the paper to print answers to one. We can not reply "in our next" or in any other issue, to questions, unless the answer will benefit many besides the one who asks. Questions of personal interest only, are answered by Postal card or letter—provided the address is given. *Please observe* that we do not give names, if a desire to the contrary is indicated. Sign the letter what you please, but *also* give the real address. *Please observe*, that it very often happens that while an answer to a letter would be generally useful, it often reaches us too late to appear in time to help the writer or any one else. *Always* in asking questions needing an early reply, include a post-stamp or a postal card, so that we may answer by mail if it is not practicable to do so in the paper. Three cents is a small affair to an individual; to us with thousands of letters, a stamp upon each is a heavy tax. We should not be asked to pay for the privilege of answering. Those who have written anonymous letters should repeat their questions with their own signatures, as they cannot expect a reply. *Always* sign your name. *Always* include return postage.

Shipment of Mules to Africa.—It would be difficult to say what peculiarly American product will not in time become an article of export to foreign countries. After having added largely to the list of exportable merchandise, we are now shipping abroad mules in large numbers. Heretofore, mules have been exported to Cuba and other places near by; now they are going to Africa to supply the wants of the British government in the war with the Zulus. There have been sent 500 head in one shipment as an experiment. Horses are not sufficiently hardy for the climate and rough work in that locality, and nearly all those sent from England have died on the passage. As we have the best mules in the world, and these animals are useful everywhere, we may hereafter find them greatly in demand abroad, and so add another important item to our list of exports. Some one has suggested that if these mules were turned right end towards the enemy, they would be more effective than artillery.

REPORTS
FROM
High Scientific Authorities
UPON THE NEW
American Agriculturist
COMPOUND MICROSCOPE.

The first Four of these new MICROSCOPES completed early in 1879, were sent by express to the distinguished authorities on such matters named below, with the request that they give them a thorough examination and testing, at their earliest convenience, and write us their opinions of them. They did so, making suggestions which were immediately adopted, and several other improvements have been since added, and the magnifying power has been much increased, so that the microscopes are now much more valuable and perfect, than when their opinions were given. We give here portions of the letters received in response.

From Prof. ASA GRAY of Harvard University,

The author of many works on Botany, etc., and the first authority in the country on this subject.

"HERBARIUM OF HARVARD UNIVERSITY,
Botanic Garden, Cambridge, Mass.

"I have been examining the new Compound Microscope which you sent me for trial; and my conclusion is, that it is the best Microscope of the kind I know of for *anything like that money*. We botanists, who do our ordinary work with simple microscopes, the glasses good doublets, or Tolles' Parabolics, and for high powers use instruments which cost anywhere from $600 to $80, are inclined to look down on smaller and cheaper things. *But really for the School Teacher or Student, I don't see* why this new instrument does not *very well* serve all ordinary purposes. When I was a young Teacher, and $50 or $80 were as much beyond my means as $500, this instrument would have been a TREASURE; and so it may be to VERY MANY who are now in a similar case. *The mechanism is excellent, and the magnifying parts for their powers are quite satisfactory. The wonder to me is, how it can be got up for any such price.....* [Prof. Gray's well known carefulness and conservatism in expressing an opinion, make the above very high praise of the instrument.—ED.]

Prof. G. BROWN GOODE,

CURATOR of the National Museum at the SMITHSONIAN INSTITUTION at Washington, and long one of the foremost, active investigating members of the United States Fish Commission, writes, from Washington, D. C.

"I have examined the new COMPOUND MICROSCOPE, *and believe it to be a much better instrument than has before been offered in the United States so low as* **$30.** I find no difficulty in making out by its aid the structure of the fruit clusters of ferns, the bird's-head processes of hydroids, and the circulation of the blood in a young fish" (all severe tests). "It defines as sharply and gives almost as flat a field as my own large Compound Microscope with one of Wales' best ¼-inch objectives, and when the draw-tube is out, its magnifying power is much increased. ....I have been studying ichthyology for eight years, with an excellent English Microscope always at my elbow, and have not, during that time, had occasion to make more than fifteen or twenty observations for which the *American Agriculturist* Microscope would not have been adequate. The greater size of the stage and mirror are to me the chief advantages in my large instrument, and these render it so difficult to pack, that I rarely carry it with me to the shore in summer.....I am told that many beautiful illustrations of hydroids in Agassiz's "*Contributions to Natural History of the United States,*" were drawn with the aid of less powerful glasses than those in the *American Agriculturist* Microscope. No one but the histologist, the lithologist, or the student of the *minutest* forms of life, such as the diatoms and infusoria, needs or can often use lenses more powerful than those supplied with this instrument; and to be successful in these lines of research, one needs not only long training, but the most delicate power of manipulation..... The application of automatic machinery to the manufacture of Microscopes on a large scale, largely promoted by the efforts of Mr. ORANGE JUDD, is a new enterprise, and the *American Agriculturist*, in giving to the public instruments good enough for all ordinary uses, *at a price which puts them within the reach of every one*, will be making still another important contribution to the work of popular education....."

Prof. WM. NORTH RICE.

Professor of Natural History, Geology, etc., in the Wesleyan University who instructs classes in Microscopy, and also uses large costly instruments, writes:

"The new *American Agriculturist* Compound Microscope you sent me, is an elegant instrument, and with the accessories is certainly very cheap at the price at which I understand you propose to supply it. The model is graceful, and the nickel-plated body, and polished vulcanite stage, give it a very pleasing appearance. The vulcanite stage allows the object to slide very smoothly upon it, and is not liable (like a metallic one) to rust or tarnish from contact of fluids. The rack-movement is as smooth and steady as in many instruments of much higher price. By using the objectives separately and in combination, and moving the draw-tube in and out, a range of power is obtained from **27** to a little over **100 diameters.** [Since increased to 150 diameters.] This series of powers begins just about where the series afforded by your Simple Microscope ends; so that, taking the two instruments together, we get a range of powers from **7** to **100 diameters**.....The mirror is so hung as to allow an oblique illumination, which with many objects is exceedingly desirable. The CAMERA LUCIDA is of a form which is the *simplest, and yet one of the most efficient.* By enabling the observer to draw the objects seen, it *adds much to the educational value of the microscope.* In general, the instrument is adequate to furnish not only *amusement*, but *real instruction.* I should be glad if the educating influence of such a Microscope might be generally diffused in the Homes and the Common Schools of our land..... [We aim to promote such general diffusion.—Ed.]

Prof. JOHN PHIN.

Editor of the *Journal of Microscopy*, author of several works on Microscopes, writes:

"I have examined carefully the new *American Agriculturist* Compound Microscope, which you placed in my hands, and find it a *wonderfully efficient instrument* for *the price.* The lenses for these, not professedly achromatic, are *extraordinarily good.* The magnifying powers, which range from 25 to 100 diameters, [since increased to 150 diameters and upwards,] according as they are used single or double, and with with the draw-tube in or out, show a much wider range of objects than is ordinarily supposed.

"It is safe to say that this new Microscope will

give a fair idea of the characteristics of two-thirds of the objects usually found in microscopic cabinets.

"For example, I have just seen with it the *characteristic differences* of the blood of man, the chicken, the frog, etc. It will show well the circulation of the blood in the foot of the frog. It shows clearly and well the differences between cotton, linen, silk, and wool, and it shows the scales and markings on the latter (wool) very boldly. It shows not only the trichina cysts in the muscle of the pig, but also the peculiar striæ or markings on the muscular fibre itself. Sections of woods, and the characteristic vessels and markings, such as dotted ducts, spiral fibres, etc., so interesting to students of botany, will all be clearly made out by this microscope.

"Perhaps it may not be out of place to say that a power of 100 diameters is by many vendors rated at 10,000 times. While this is unfair, and even deceptive in the majority of cases to which the microscope is applied, there are some subjects concerning which it is *more than* true. Thus a little speck of gold, weighing the *one-hundredth* part of a grain, if seen under the highest power of this new microscope, would look as large as a mass of a similar shape weighing one pound and a quarter (8,750 grains) seen with the naked eye!! This is startling, but true.

"Allow me to congratulate you on your success in giving our young people a microscope which, while extraordinarily low-priced, is really of *decided practical value.*"

Rape before Wheat.—"J. M.," Blairsville, Pa. Spring rape or mustard may be sown as a summer pasture for sheep, and as a preparation for wheat, with advantage. It may be sown at once, a peck of seed being used per acre; and when high enough, may be eaten down by the sheep. It should be plowed under when any that is left is in blossom, but should not be permitted to mature seed.

Protrusion of the Rectum in Swine.—"J. H. D.," Adams Co., Ohio. This trouble is frequent in swine. It is caused by costiveness and consequent straining, or by weakness of the nerves of the spine, and often results in partial paralysis. The remedy is to give laxative medicine or food, as linseed-oil or linseed-meal, and to return the gut and inject an ounce of a mixture of 8 parts of water and 1 part of laudanum. The animal should be lightly fed, kept in a dark quiet pen, that he may sleep and rest as much as possible.

Barb Fence.—"H. H. S.," Rockingham Co., Va. To make a wire fence hog proof, it must have 5 or 6 wires, strained very tightly, and have posts not more than 16 or at most 24 feet apart. A good post and rail, or board fence, is preferable to a wire fence excepting where lumber is very costly, or where the snow drifts badly.

Vine Named.—"G. W. K.," White Haven, Pa. The vine which came up in your hanging basket, is not poisonous, but often cultivated under the name of "Balloon Vine," so called on account of its inflated, balloon-shaped pods. It is a native of the far South-West; its botanical name is *Cardiospermum Halicacabum.*

Horses — Knuckling.—"F. A. P.," Dudley, Mass. When the fetlock or pastern joint bends over with a snapping noise, it is known as "Knuckling." It results from a sprain or weakness of the hock, or sinews of the lower part of the leg. Rest for a lengthened period (3 days rest is of no account), and the application of cold water until the heat and tenderness are removed, and then rubbing with a stimulating application, will frequently remove the trouble. It is sometimes the effect of constitutional weakness, and is then incurable. In the latter case the support of a laced bandage will be useful.

The Trade in Tin—and Tin Plate.—Tin is a remarkable metal, almost equalling silver in beauty; it is the lightest of all the common metals save zinc, being about five-eighths as heavy as lead (the specific gravity of lead being 11.39 and of tin 7.29). Though it is sufficiently abundant and cheap to allow of its common use, it is found in but few localities in abundance, and it is somewhat singular that, with our abundance of other metals, we are dependent upon other countries for this, our deposits not being large enough for profitable working. The mines of Cornwall, Eng., are the largest in the world. The leading sources of the supply of this metal in 1874 were: Great Britain, 10,000 tons; Malacca, 7,000 tons; Australia, 5,800 tons; Banca (Malayan Island), 4,000 tons; Billiton and Banca (Malayan Islands), 3,000 tons ...The tin plate, used for so many purposes, consists of thin plates of iron coated with tin by dipping the carefully scoured plates in the melted metal. The value of the plate depends upon the quality of the iron and the thickness of the coating of tin. "Charcoal Tin" and "Coke Tin" are trade names for plates, the iron of which is smelted with these fuels. The poorest grade has but one pound of tin to 100 lbs. of plate, while the better qualities have two or three times as much; the coarser varieties are covered with an alloy of tin and lead. "Cross Tin" is the name for a kind in which the iron plate is heavier than in the common tin. A box of tin plate containing 225 sheets 10×14 inches, weighs 1 cwt. (112 lbs.); a box of "cross tin" of the same number and size of sheets, weighs 1¼ cwt., or 140 lbs., of which 4 to 6 lbs. are pure tin in the coating, and the rest iron.

Saw-Dust.—"E. B. S.," St. Paris, O. Saw-dust that has "lain 8 or 9 years in a heap," and is not yet rotted sufficiently to make manure, shows pretty plainly the task before you. If it will decompose at all, it will do so by laying in bulk exposed to air and rain. Saw-dust will make wet land wetter and dry land moist. Probably the best use for it is as a mulch around trees.

Land Plaster.—"C. N.," Wash. Ter., wishes us to tell him about "Land Plaster; what it is made of, and how it is made."—If we were to answer, "it is not made at all," the reply, while accurate, would hardly be courteous. Plaster is an unfortunate name, as it has several other meanings, and if all would agree to call it *gypsum*, the old Greek and Latin name for the substance, it would be much more definite. Gypsum, or Land Plaster, then, is a natural product, a mineral, occurring sometimes in crystals, but oftener in mass, in beds several feet in thickness. The finer kinds, partly transparent and variously colored, are known as alabaster; the common kinds, varying from white to lead color, or even black, are much softer than common limestone, and are more translucent. There are large beds, where it is quarried, in Michigan, New York, Nova Scotia, etc. Its composition, in round numbers, is: Lime 32½, sulphuric acid 46½, water 21 parts in 100—really a sulphate of lime combined with water. This water may be driven off by a heat of 272°, and the gypsum then becomes Plaster of Paris. When Plaster of Paris is mixed with water, it soon recombines with the water that was driven off by the heat, and "sets," or becomes solid. Gypsum or land plaster then is a sulphate of lime containing about 21 per cent of water. Plaster of Paris is sulphate of lime, without water. The ground, unburned stone only, is used as a fertilizer.

Fine Maple Sugar.—W. B. Wheat, Croton, Del. Co., N. Y., sends a sample of maple sugar, to show the quality he has made for several years past. It is very light colored, has an excellent grain, and possesses the peculiar maple-sugar flavor, in a high degree. It is often the case, that very light colored sugar is deprived of this flavor in the process, and is then no different from common sugar. Mr. W. says, that his only secret in making sugar of this kind,—and we do not remember to have seen it excelled—is a thorough knowledge of the business, which leads to having everything used in and about the operations as clean and as pure as possible.

In this country all persons are compelled of necessity to wear shoes, at least most of the year, and although it is generally understood that some individuals are much harder upon shoes than others, still it has always been a wonder to us why children (even making allowance for the greater number of steps they take) should wear out two and even three pairs to grown people's one. We have, however, of late, discovered that this is due largely to their not being properly made. What we mean by this is that they have not been protected from wear where the greatest amount of wear comes—*that is, at the toe*—and consequently wear through at this point, while the balance of the shoe was but little worn and often perfectly good. Parents who are not aware of this will be convinced at once if they will examine the children's old shoes. This need no longer be the case, as shoes with the metal tip, which is adapted to all the heavy grades, and those with the (A. S. T. Co.) black tip, which is adapted to all fine shoes, remain perfect at the toe until the shoe is entirely worn out. We are satisfied that parents can reduce their shoe bills one-half if they will, when purchasing, ask for shoes made in this way. The black tip really adds to the beauty of the finest shoe.

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Speaking of Mr. Thomas Higgin, the "*American Cultivator*" of May 3d says:—"Always well known for enterprise and business sagacity, he has, during the last few years, become noted as the inventor of an improved process in salt manufacture, which bids fair to revolutionize that business. So great has been the demand for this new make of salt that his firm have been obliged, during the last year, to make additions to their already extensive works; and Mr. Higgin is at present on a visit to this country for the purpose of bringing its quality to the attention of the American public, and, if the quality of American brine will permit, to induce salt manufacturers here to use his process, paying a royalty therefor. Competent judges say it is probable that this process will work as great a revolution in the manufacture of salt as the discovery of the Bessemer process has in that of steel, or new process in milling in that of flour." Confirmatory of this comes the announcement in the "American Grocer" of May 8th, that during the first three months of 1879 the importations show an increase of over 50 per cent of Higgin's salt, and a decrease of 17 per cent in Ashton's, a brand once generally considered the best. This improved salt (Higgin's *Eureka* brand) is for sale by most dealers in salt, and by the importers, H. K. & F. B. Thurber & Co., New York. Send for descriptive circular.

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PORTABLE ENGINE, owned and manufactured exclusively by J. C. TODD, at Paterson, N. J., and sold at 10 Barclay St., New York, and by my agents in different cities. This last invention is a great improvement on the old style, being simplified, and is sold at greatly reduced prices, which are as follows, viz.: A 1 h. p. engine and boiler, complete, ready to run, for $125; 1½ h. p., $175; 2 h. p., $225; 2½ h. p., $250; 3 h. p., $275, and 4 h. p., $330. Larger sizes in proportion. Send for circulars.

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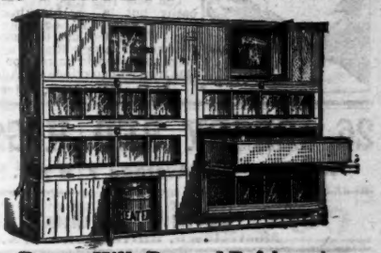

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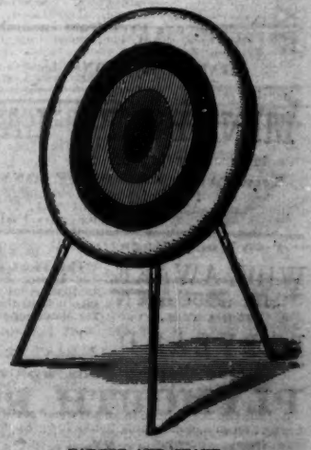

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The Target and Stands are greatly improved, as the Targets are filled with coarse Excelsior, having a cover on both sides, not leaving any openings or joints, but are solid like a cushion. The faces will therefore last much longer.

The Stands are so constructed that they can be folded, which makes them conveniently portable. They are easily joined together, and very much lighter and *cheaper* than the ordinary stand. The prices are as follows:

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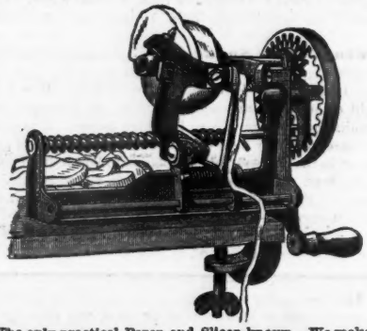

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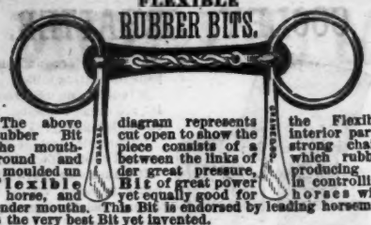

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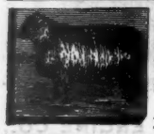

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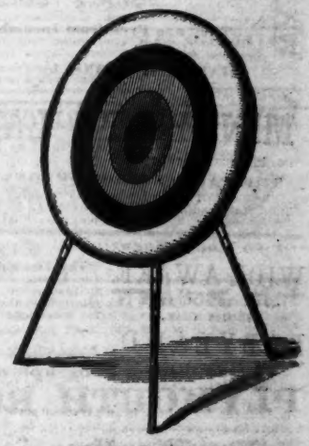

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